

AMAZING STORIES

NOVEMBER
25 Cents

Scientific fiction by:

L. R. Nathanson

Jack Williamson

Abner J. Gelula

PRODUCED BY UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Announcing

at lowest prices IN YEARS



\$50

7 expertly matched, genuine white diamonds; new square prong 18-K white Gold ring. Fashionette engraved sides. Like a \$750. solitaire. Only \$2.65 a month.



\$2750

Wedding ring—beautifully hand engraved. Bridal design. Seven (7) expertly matched genuine blue-white diamonds in latest style modern 'step' setting of 18-K solid White Gold. Only \$2.65 mo.



\$50

Most popular of the square prong rings. Richly hand engraved square prong ring of 18-K solid White Gold. Set with a perfect, genuine blue-white diamond and 2 matched genuine diamonds on sides. Only \$4.90 month.

ing and Graceful
RUS
UETTE



\$3750

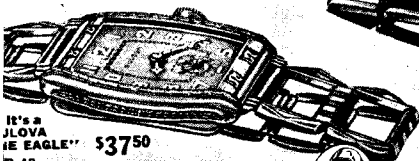
FB 52... Benrus Baguette—petite, slender Wrist Watch for ladies! A baguette model for the first time at this low price. Engraved, white, permanent case. Guaranteed 15-jewel Benrus "shockproof" movement. Baguette effect link bracelet to match. Only \$3.65 a month.



\$3450

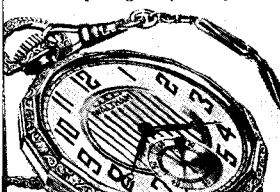
2 Diamonds
2 Emeralds or Sapphires

B 53... Diamond Wrist Watch. Two (2) genuine diamonds and four (4) Sapphires or emeralds. Beautifully engraved 14-K solid white Gold case. Guaranteed 15-jewel movement. Engraved open link bracelet to match. Unusual value! Only \$3.35 a month.



It's a
BULOVA
"EAGLE" \$3750

B 40... Lone Eagle—Dedicated to Col. A. Lindbergh—Handsomely engraved white permanent case, guaranteed 15-jewel Bulova precision movement. Radium hands and al. Patented "dust-tite" protector. Engraved, open link bracelet; extension center opening. Only \$3.65 a mo.



GIFT CASE
FREE

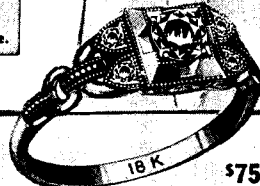
Every article comes to you in a most beautiful and appropriate presentation case.

\$2750

WALTHAM
POCKET WATCH COMBINATION



Engagement Rings
in the modern mode.



\$75

FB 54... The "Love-Link"—new, square prong, engagement ring with the elegance and grace of much higher priced rings; offered now for only \$75. Exquisitely hand engraved in every detail: 18-K Solid White Gold mounting; brilliant, perfect, genuine blue-white diamond in center and 4 matched genuine diamonds on the sides. Special terms: \$5.00 with order. Only \$7.00 a month.

\$1975

FB 55... "American Girl"—Beautifully engraved White Gold filled rectangular case. Guaranteed 15-jewel movement. Pierced, flexible wristacat bracelet with Sapphire set stem. Only \$1.87 mo.



\$22

FB 42... Nationally advertised Waltham or Elgin; guaranteed accurate and dependable. Engraved white lifetime case. Fine engraved open link bracelet to match; with an extension center opening. \$2.10 a month.



\$4850

FB 39... "America's Sweetheart"—Ultra-modern 18-K Solid White Gold engagement ring; dazzling perfect, genuine blue-white diamond in center, 6 matched diamonds in engraved 'step' effect sides. Only \$4.75 a month.



\$25

FB 34... Richly hand engraved 18-K Solid White Gold solitaire mounting; set with a fiery, genuine blue-white diamond. Only \$2.40 a month.



\$75

FB 50... Gentlemen's massive 'step' mounting of 18-K Solid White Gold or 14-K Solid Green Gold. Large, perfect blue-white diamond. Special terms: \$5.00 with order. Only \$7.00 a mo.



Direct Diamond Importations and Large Volume Buying Enable Us to Offer UNUSUALLY LOW PRICES

Direct, diamond importations and over \$2,000,000 in orders yearly in our national mail order and retail chain store system, give us tremendous advantages in the world's most important buying markets—these benefits we pass on to you in the greatest values in our history. Order now in full confidence—you will be delighted and surprised with our saving prices on genuine blue-white diamonds, fine standard watches and exquisite, modern jewelry. No extra charge for the convenience of dignified liberal credit.

HOW TO ORDER Just send \$1.00 with your order and your selection comes to you on 10 DAYS FREE TRIAL. NO C.O.D. TO PAY ON ARRIVAL. After full examination and free trial, pay balance in 10 equal monthly payments.

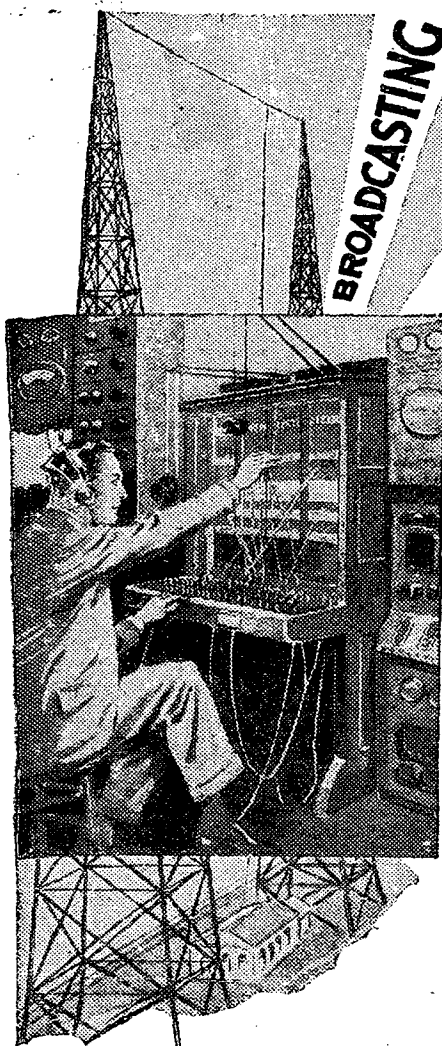
SATISFACTION GUARANTEED—10 DAYS FREE TRIAL. You have the full privilege of 10 days free trial—if not completely satisfied, return shipment at our expense and the entire deposit will be refunded. Our written guarantee bond accompanies every diamond and watch purchased.

ALL DEALINGS STRICTLY CONFIDENTIAL—NO EMBARRASSING INVESTIGATIONS—10 MONTHS TO PAY! No interest—no extras—no red tape; you take no risk. Satisfaction guaranteed or money back. (Residents of New York City and vicinity, who prefer, are invited to call in person at our salesrooms for these marvelous values.)

ADULTS! SEND FOR OUR NEW FREE CATALOGUE!

Completely illustrated new catalogue describing hundreds of very special values in genuine, blue-white diamonds from \$25. to \$1000.; also Bulova, Elgin, Waltham, Hamilton, Howard, Illinois Watches, on credit at cash prices—watches from \$12.50 and upward; special bargains in smart modern jewelry and silverware. Write today for your free copy.

ESTABLISHED 1895



BROADCASTING
TELEVISION
TALKING PICTURES
WIRELESS OPERATING

WIN FAME and FORTUNE in RADIO!

Scores of jobs are open to the Trained Man—jobs as Designer, Inspector and Tester—as Radio Salesman and in Service and Installation work—as Operator, Mechanic or Manager of a Broadcasting station—as Wireless Operator on a Ship or Airplane—jobs with Talking Picture Theatres and Manufacturers of Sound Equipment—with Television Laboratories and Studios—fascinating jobs, offering unlimited opportunities to the Trained Man.

Ten Weeks of Shop Training

Come to Coyne in Chicago and prepare for these jobs the **QUICK and PRACTICAL** way—**BY ACTUAL SHOP WORK ON ACTUAL RADIO EQUIPMENT.** Some students finish the entire course in 8 weeks. The average time is only 10 weeks. But you can stay as long as you please, at no extra cost to you. No previous experience necessary.

TELEVISION and Talking Pictures

In addition to the most modern Radio equipment, we have installed in our shops a complete model Broadcasting Station, with sound-proof

Studio and modern Transmitter with 1,000 watt tubes—the Jenkins Television Transmitter with dozens of home-type Television receiving sets—and a complete Talking Picture installation for both "sound on film" and "sound on disk." [We have spared no expense in our effort to make your training as **COMPLETE** and **PRACTICAL** as possible.]

Free Employment Service to Students

After you have finished the course, we will do all we can to help you find the job you want. We employ three men on a full time basis whose sole job is to help our students in finding positions. And should you be a little short of funds, we'll gladly help you in finding part-time work

while at school. Some of our students pay a large part of their living expenses in this way.

Coyne Is 32 Years Old

Coyne has been located right here in Chicago since 1899. Coyne Training is tested—proven by hundreds of successful graduates. You can get all the facts—**FREE.** **JUST MAIL THE COUPON FOR A FREE COPY OF OUR BIG RADIO AND TELEVISION BOOK,** telling all about jobs . . . salaries . . . opportunities. This does not obligate you. Just mail the coupon.

H. C. Lewis, Pres.

Radio Division Founded 1899
Electrical School
Street Dept. 81-8C, Chicago, Illinois

H. C. LEWIS, President
Radio Division, Coyne Electrical School
500 S. Paulina St., Dept. 81-8C, Chicago, Ill.

Send me your Big Free Radio, Television and Talking Picture Book. This does not obligate me in any way.

Name.....

Address.....

City..... State.....



JULES VERNE'S TOMBSTONE AT AMIENS
PORTRAYING HIS IMMORTALITY

AMAZING STORIES

Scientific Fiction

Vol. 6

November, 1931

No. 8

In Our Next Issue

THE INEVITABLE CONFLICT, by Paul H. Lovering. (A Serial in 2 parts) Part I. Where will these demands for equal rights for women end? Perhaps, after many more wars are fought, women may—with cries for eternal peace—gain the upper hand. What kind of a world would this be, ruled by a Matriarchy? A topsy-turvy world? Perhaps. But read what Mr. Lovering thinks about such a possible world—in the far future.

PIRATES OF SPACE, by B. X. Barry. According to present-day newspaper accounts, pirates seem to have come again into vogue. But the pirates of the future, when interplanetary travel has become an everyday occurrence, and when numerous interplanetary marvels have been disclosed, will undoubtedly work their ends in a very much different manner. Here is an exciting interplanetary novelette that must bring you much enjoyment and many thrills.

SKY COPS, by Harl Vincent and Charles Roy Cox. Traffic in the air! That sounds humorous, but for how long? If the automobile roads become very much congested, a great many of us will have to take to the air and perhaps go to other planets. Naturally there will be need for traffic cops in the air. But what a job will be theirs! This is a fast-moving story of sustained interest.

TUMITHAK OF THE CORRIDORS, by Charles R. Tanner. It is not necessarily cowardice that makes a people retreat further and further from an enemy which has ruthlessly brought complete destruction and death to thousands. It is sensible caution that comes with experience. But always there is someone—in generations far removed, perhaps—who dares to risk all in an effort to release his people from the bonds of such enslaving fears! Tumithak goes through many corridors to achieve his ends.

And other unusual science fiction

In Our November Issue

Automaton

By Abner J. Gelula..... 680
Illustration by Morey

The Rat Racket

By David H. Keller, M.D..... 698
Illustration by Morey

Luvium

By A. R. McKenzie..... 706
Illustration by Morey

The Antarctic Transformation

By I. R. Nathanson..... 720
Illustration by Morey

The Stone from the Green Star

(A Serial in two parts) Part II
By Jack Williamson..... 730
Illustration by Morey

In the Realm of Books..... 762

Discussions..... 763

Our Cover

this issue, depicts a scene from the story entitled, "The Stone from the Green Star," by Jack Williamson, in which our hero from the past finds himself in deadly combat with the strange, uncanny, intelligent creatures inhabiting the Green Star and guarding the stone of life.

Cover illustration by Morey

Published Monthly by Teck Publishing Corporation, Washington and South Avenues, Dunellen, N. J.

OFFICERS

Lee Ellmaker, President
Warren P. Jeffery } Vice Presidents
Huston D. Crippen }
William Thompson, Treasurer
Wesley F. Pape, Secretary

EDITORIAL AND EXECUTIVE OFFICES
350 HUDSON STREET, NEW YORK CITY, N. Y.

Entered as second class matter at the Post Office at Dunellen, N. J., under the act of March 3, 1879. Copyright, 1931, by Teck Publishing Corporation. All rights reserved. Title Registered at the U. S. Patent Office. Printed in the United States of America. The contents of this magazine must not be reproduced without permission. We cannot be responsible for lost manuscripts, although every care is taken for their safety.

25c a Copy, \$2.50 a year,
\$3.00 in Canada, \$3.50 in
Foreign Countries. Sub-
scribers are notified that
change of address must reach
us five weeks in advance of
the next date of issue.



His Salary was Raised while others were Reduced

"Up to the time I enrolled for a course with the International Correspondence Schools, I had only a grade-school education. Since enrolling, I have advanced to a much better position, where my salary is nearly four times as much as I was making previously. I would not be able to hold my present position had I not taken your course. Recently I received a nice increase in salary, while other men were being reduced."

READ that last sentence again—"Recently I received a nice increase in salary, while other men were being reduced."

There could be no better proof of the value of an I. C. S. course than that. It shows that the trained man is given preference over all others and paid more money, even in slack times, if his work deserves it. It shows that there are always bigger, better jobs open for men who have the foresight to prepare for them in spare time.

Jesse G. Vincent was a toolmaker before he enrolled with the I. C. S. He is now Vice-president of the Packard Motor Car Co. Walter Chrysler, President of the Chrysler Corporation, is also a former I. C. S. student. So is "Eddie" Rickenbacker, the famous flying ace, who is now Director of Sales for the La Salle car.

An I. C. S. course enabled Fred W. Southworth to leave a poorly paying job he had held for twenty years and

get a position as a salesman. In six months he increased his salary 300%.

George A. Grieble is another man who lifted himself out of the rut by spare-time study. He was a stone-cutter earning \$15 a week when he enrolled

with the I. C. S. He now has his own architectural and engineering business in Cleveland and his income is "between \$10,000 and \$15,000 a year."

If the I. C. S. can help these men to get out of the rut and make good, it can help you too. If it can raise the salaries of other men, it can raise yours! At least find out how.

The way is easy! Just mark the work you like best in the coupon below. Then mail it to Scranton today.

This doesn't obligate you in any way, but it brings you information that may start you on a successful career. This is your opportunity.

Mail Coupon for Free Booklet

INTERNATIONAL CORRESPONDENCE SCHOOLS, Box 5781-B, Scranton, Penna.
"The Universal University"

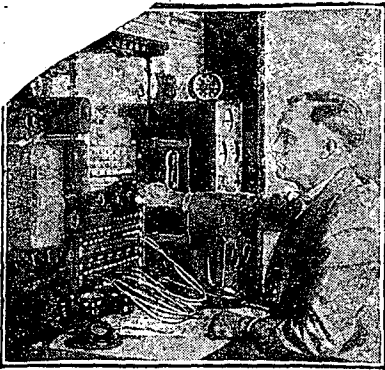
Without cost or obligation, please send me a copy of your booklet, "Who Wins and Why," and full particulars about the subject before which I have marked X:

<input type="checkbox"/> Electrical Engineering <input type="checkbox"/> Electric Lighting <input type="checkbox"/> Mechanical Engineer <input type="checkbox"/> Mechanical Draftsman <input type="checkbox"/> Machine Shop Practice <input type="checkbox"/> Railroad Positions <input type="checkbox"/> Gas Engine Operating <input type="checkbox"/> Civil Engineer	<input type="checkbox"/> Plumbing and Heating <input type="checkbox"/> Surveying and Mapping <input type="checkbox"/> Mining <input type="checkbox"/> Steam Engineering <input type="checkbox"/> Radio <input type="checkbox"/> Architect <input type="checkbox"/> Architects' Blueprints <input type="checkbox"/> Contractor and Builder	<input type="checkbox"/> Architectural Draftsman <input type="checkbox"/> Concrete Builder <input type="checkbox"/> Structural Engineer <input type="checkbox"/> Chemistry <input type="checkbox"/> Pharmacy <input type="checkbox"/> Automobile Work <input type="checkbox"/> Airplane Engines <input type="checkbox"/> Navigation <input type="checkbox"/> Mathematics
<input type="checkbox"/> Business Management <input type="checkbox"/> Industrial Management <input type="checkbox"/> Personnel Management <input type="checkbox"/> Traffic Management <input type="checkbox"/> Accounting and C. P. A. Coaching <input type="checkbox"/> Cost Accounting	<input type="checkbox"/> Bookkeeping <input type="checkbox"/> Secretarial Work <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> Salesmanship <input type="checkbox"/> Advertising <input type="checkbox"/> Business Correspondence <input type="checkbox"/> Show Card and Sign Lettering	<input type="checkbox"/> Stenography and Typing <input type="checkbox"/> English <input type="checkbox"/> Civil Service <input type="checkbox"/> Railway Mail Clerk <input type="checkbox"/> Common School Subjects <input type="checkbox"/> High School Subjects <input type="checkbox"/> Illustrating <input type="checkbox"/> Cartooning

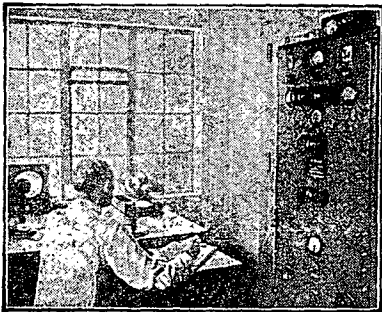
Name.....
 Street Address.....
 City..... State.....
 If you reside in Canada, send this coupon to the International Correspondence Schools Canadian, Limited,
 Montreal, Canada

You're Wanted

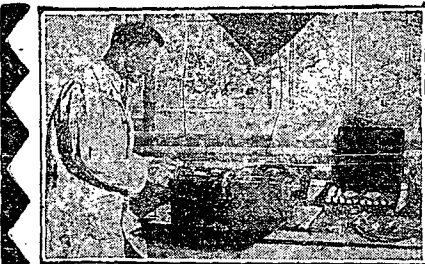
Take your pick of these fine Big Pay Radio Jobs



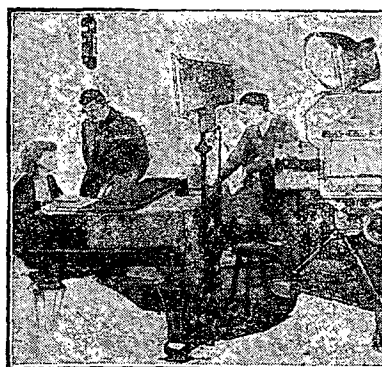
Broadcasting Stations offer fascinating jobs paying from \$1,200 to \$5,000 a year.



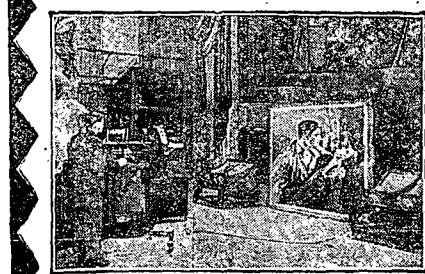
Police Departments are finding Radio a great aid in their work. Many good jobs have been made in this new field.



Spare time set servicing is paying N. R. I. men \$200 to \$1,000 a year. Full time men are making as much as \$65, \$75, \$100 a week.



Talking Movies—an invention made possible only by radio—offers many fine jobs to trained radio men, paying \$75 to \$200 a week.



Television—the coming field of many great opportunities—is covered by my course

YOU have seen how the men and young men who got into the automobile, motion picture and other industries when they were started had the first chance at the key jobs—are now the \$5,000, \$10,000 and \$15,000 a year men. Radio offers you the same chance that made men rich in those businesses. Its growth has already made men independent and will make many more wealthy in the future. Its amazing growth can put you ahead, too. Don't pass up this opportunity for a good job and future financial independence.

**Many Good, \$50 to \$100 a Week
Jobs Opening Every Year**

Radio needs more trained men badly. Why slave your life away for \$25 to \$40 a week in a no-future job when you can get ready in a short time for Radio where the good jobs pay \$50, \$60, \$75 and \$100 a week? And many of these jobs can quickly lead to \$150 to \$200 a week. Many fine jobs are opening every year for men with the right training—the kind of training I'll give you.

**I am Doubling and Tripling
Salaries**

Where you find big growth you always find many big opportunities. I am doubling and tripling the salaries of many men every year. After training with me only a short time they are able to make \$1,000 to \$3,000 a year more than they were getting before. Figure out for yourself what an increase like this would mean to you—the many things that mean so much in happiness and comfort that you could buy with an additional \$1,000 to \$3,000 a year.

**Many Make \$10 to \$25 a Week
Extra Almost at Once**

The day you start I'll show you how to do twenty-eight jobs common in most every neighborhood that you can do in your spare time. I'll show you how to repair and service all makes of sets and do many other jobs all through my course. I'll give you the plans and ideas that are making \$200 to \$1,000 for my students while they are taking my course. G. W. Page, 133 Pine Street, McKenzie, Tenn., writes: "I made \$935 in my spare time while taking your course."

**You Have Many Jobs
to Choose From**

Broadcasting stations use engineer operators, station managers. Radio manufacturers continually need testers, inspectors, foremen, engineers, service men, buyers and managers. Shipping companies, Police departments, commercial land stations, aircraft companies, offer good operators jobs from time to time. There are hundreds of opportunities for you to have a spare time or full time Radio business of your own. I'll show you how to start one with practically no capital. My book tells you of other opportunities. Be sure to get it at once.



\$400 a Month

"I spent fifteen years as traveling salesman and was making good money but could see the opportunities in Radio. Believe me I am not sorry for I have made more money than ever before. I have made more than \$400 each month and it really was your course that brought me to this. I can't say too much for your school." J. G. Dahlstead, Radio Station KYA, San Francisco, Cal.



\$800 in Spare Time

"Money could not pay for what I got out of your course. I did not know a single thing about Radio before I enrolled but I have made \$800 in my spare time although my work keeps me away from home from 6:00 A.M. to 7:00 P.M. Every word I ever read about your course I have found true." Milton L. Leiby, Jr., Topton, Pennsylvania.



Seldom Under \$100 a Week

"My earnings in Radio are many times greater than I ever expected them to be. In November I made \$677, December \$645, January \$464. My earnings seldom fall under \$100 a week. I'll say the N. R. I. course is thorough and complete. You give a man more for his money than anybody else." E. W. Winborne, 1267 W. 48th St., Norfolk, Va.

for a **Big Pay** Radio Job

I will train you AT HOME free book gives facts and proof

I Will Train You at Home In Your Spare Time

Hold your job. There is no need for you to leave home. I will train you quickly and inexpensively during your spare time. You don't have to be a high school graduate. My course is written in a clear, interesting style that most anyone can grasp. I'll give you practical experience under my 50-50 method of training — one-half from lesson books and one-half from practical experiments. When you graduate you won't have to take any kind of a job to get experience—you will be trained and experienced, ready to take a responsible job in the radio field of your choice.

Television and Talking Pictures Included

My course not only gives you a thorough training in Radio—all you need to know to get and hold a good job—but also your choice, without extra charge, of any one of my special advanced courses: (1) Television, (2) Aircraft Radio, (3) Broadcasting, Commercial and Ship Radio Stations, (4) Sound Pictures and Public Address Systems, (5) Advanced Radio Servicing and Merchandising. You won't be a "one job" man when you finish my course. You'll know how to handle a job in any one of Radio's 20 different branches of opportunity.

J. E. SMITH, President

NATIONAL RADIO INSTITUTE

Dept. 1 M S

WASHINGTON, D. C.



Salary Three Times Larger

"Before I completed your course I went to work for a Radio dealer. Now I am Assistant Service Manager of the Sparks-Withington Company. My salary is three times what it was before taking your course. I could not have obtained this position without it. I owe my success to N. R. I. training." H. A. Wilmoth, Sparks-Withington Company.

Lifetime Employment Service to All Graduates

When you finish my course you won't be turned loose to shift for yourself. Then is when I will step in to help you find a job through my Employment Department. This Employment Service is free of extra charge both to you and the employer.

Your Money Back If Not Satisfied

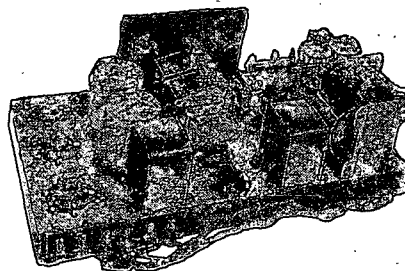
You do not risk a penny when you enroll with me. I will give you an agreement in writing, legal and binding upon the institute, to refund every penny of your money if, upon completing my course, you are not satisfied with my Lessons and Instruction Service. The resources of the N. R. I., Pioneer and Largest Home-Study Radio training organization, stands back of this agreement.

Find Out What Radio Offers You—Get My Book at Once

One copy of my valuable book, "Rich Rewards in Radio," is free to anyone interested in making more money. It tells you where the good jobs are, what they pay, how you can quickly and easily fit yourself to get one. The coupon below will bring you a copy. Send it at once. Your request does not obligate you in any way. Act NOW.



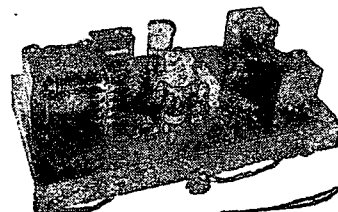
I give You 8 Big Outfits of Radio parts for Extensive Practical Experiments



Seven tube screen
grid tuned radio
frequency receiver.

You can build over 100 circuits with the outfits I give you. You learn from actual experience about A. C., Screen Grid Circuits, push-pull amplification and the other features in modern sets. Shown here are two of the outfits you build. You work out with your hands the principles, diagrams and circuits you learn from my lesson books. You get as much practical experience under this unequalled method of home training, in a few months, as the average fellow gets in two to four years in the field.

Public Address Audio System



Clip and mail NOW for FREE INFORMATION

J. E. Smith, President,

National Radio Institute, Dept. 1 M S

16th and U Sts., N. W., Washington, D. C.

Dear Mr. Smith: Send me "Rich Rewards in Radio." Tell me more about Radio's opportunities for good jobs and quick promotion; also about your practical method of Home Training. I understand this request does not obligate me and that no agent will call on me.

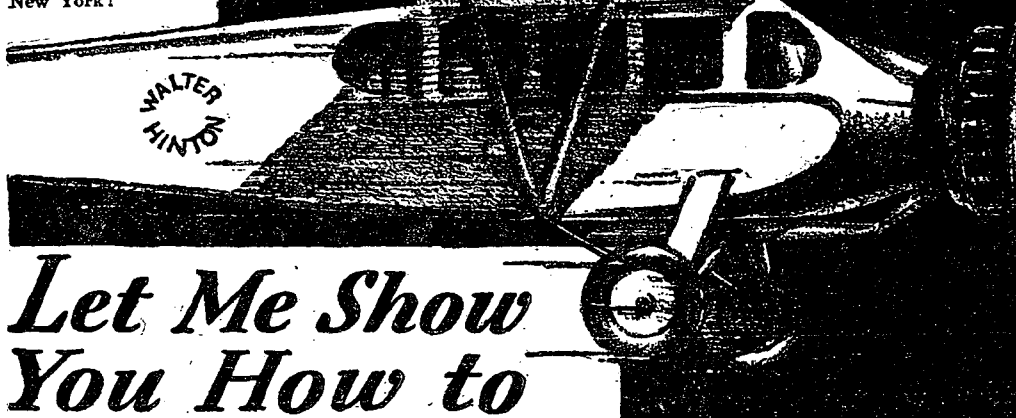
Name

Address

City State

\$75 a Week for Dobbins

My graduate, R. N. Dobbins, got a job immediately after finishing my course. Now he's earning \$75 a week as Chief Instructor at a big Aviation School in New York!



Let Me Show You How to

EARN \$60 to \$100 a Week and UP in AVIATION!

My up-to-date home study Course gives you the ground work you need to *get and keep a real job* in this fascinating, fast growing industry. Scores of my graduates, who didn't know a thing about Aviation a few months ago, are holding down fine jobs right now—in the air and on the ground. *Over forty different types of jobs to choose from*, once you have this necessary training. Get the facts about my practical training, free Employment Service, and Money-Back Agreement NOW!

I Teach You QUICKLY— at Home in Your Spare Time

You don't need to give up your present job—don't need to leave home, to get your training in Aviation. I've made it easy for you. I've put my own fifteen years of experience—backed by over 400,000 miles of flying—five years of instructing in the Navy—all into my thorough, quickly mastered home study Course.

No Previous Experience Needed

You don't even need a high school education—don't have to know anything about planes or engines to learn the ground work of Aviation with my Course. Everything is clearly explained—illustrated by hundreds of pictures, drawings and charts—made as simple and easy as possible. You get all the information you need to pass the Government's written examinations for Mechanic's or Pilot's Licenses, in a few short months. If you want to learn to fly, I can save you many times the cost of my Course on your flying time at good airports all over the country.

FREE Air- plane Ride!

Right now I'm making an offer of a free airplane ride to all of my students. Write me at once and I'll send you complete information. Act now—to get in on this fine offer—while it is still open!

There's No Time To Lose— Get My FREE Book NOW!

Aviation is growing by leaps and bounds—while many other industries are slumping. Don't wait and let the other fellows get ahead of you. Think about your own future. Let me prepare you for a job paying \$60 to \$100 a week or more—in Aviation. Get the FACTS. Mail the handy coupon on the right today—right now—while you're thinking about it. I'll send you my big new FREE Book—packed with interesting facts about your opportunities in Aviation. Do it NOW.

WALTER HINTON, President
Aviation Institute of U. S. A., Inc.
1115 Connecticut Ave., Washington, D. C.

Get on AVIATION'S PAYROLL!



Walter Hinton

First to fly the Atlantic; first to fly to South America; first to explore the upper regions of the Amazon by plane. Flying Instructor in Navy for five years. Now giving ambitious men practical ground work training in Aviation at home. If you are 16 or over, mail the coupon below for your copy of his big new FREE Book today.



Mail for my big FREE BOOK on AVIATION NOW!

Walter Hinton, President,
Aviation Institute of U. S. A., Inc.
1115 Connecticut Avenue, Washington, D. C.

675-F

Please send me a Free copy of your book, "Wings of Opportunity," telling all about my opportunities in Aviation, how you will train me at home and help me get a job.

Name (Print clearly)

Address Age
(Must be 16 or over)

City State

VOLUME
6



AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

NOVEMBER, 1931
No. 8



T. O'CONOR SLOANE, Ph.D., *Editor*

MIRIAM BOURNE, *Managing Editor*

C. A. BRANDT, *Literary Editor*

Editorial and General Offices: 350 Hudson Street, New York, N. Y.

Extravagant Fiction Today Cold Fact Tomorrow

Heavy Stone

By T. O'Connor Sloane, Ph.D.

IRON, the commonest of the metals, has a very curious history. A few of the interesting things about it were spoken of in our last issue. Nickel and cobalt resemble it in magnetic properties, but iron stands absolutely alone in its relation to the magnetic field. It is the only metal that will give good service, the only one which offers comparatively little reluctance to the passage of magnetic lines of force. This is why it is used for armatures and field cores in electric motors and generators. If it is of proper quality, it will pass the lines of force, as a conductor will pass a current, and will retain but a minimum quantity when the exciting current is cut off. But this refers to pure iron and to iron especially adapted to electro-magnetic machinery—iron containing carbon will retain lines of force and will retain and keep a field of force once it has been excited; it becomes a permanent magnetic. To produce a first quality steel for permanent magnets, the iron must contain carbon and generally some other metal, but all additions in very small amount—the principal and essential constituent of magnet steel is iron.

One of the standard additions to iron is the metal tungsten—"heavy stone" is what the name means. The name was originally given by Swedish miners to the ore of this metal, who had noticed lumps of it in mines of iron ore and were impressed by its high specific gravity.

Another name for the identical mineral is wolfram, which is supposed to mean "wolf's soot"—certainly not at all a suggestive name. The German word "rahm" means "cream" and also "soot"; the latter is the best selection for the etymology of wolfram.

The effect of tungsten upon iron has brought about a true revolution in shop practise. One of the great troubles in lathe work drilling and milling in former times was the destruction of the points and cutting edges of the tools. Machine lathes, drill presses and the like had to be driven at very low speed, cutting a very thin chip, and with constant lubrication of the surface which was operated on. The writer remembers his own experiences with a lathe in turning iron before the days of tungsten—the irritating slowness and constant application of oil in quantity. Sometimes soft-soap was kept flowing in a stream on the point of the tool.

And then came the revolution. Tungsten steel preserved its cutting power when red hot. It can be run without a lubricant at high speed and with a deep cut. The chips will fall from the lathe or other machine so hot that they will oxidize to a blue color, giving one of the trade names for the metal, "blue chip steel." It would be interesting to put a tungsten worker on a

lathe with the old time carbon steel tools. The points of the tools would crumble in a few minutes. It is fair to say that few people realize what this unattractive and almost unworkable metal has done in industry, when melted up with iron in small percentage.

It is astonishing to see a high speed tool cut great shavings from solid steel as easily as if it were lead.

Iron and carbon steel are easily melted compared to tungsten. Platinum is so infusible that chemists used it for their crucibles before its price made it prohibitive. In degrees centigrade, tungsten is nearly twice as infusible as platinum. Iron volatilizes at 2450°C, but tungsten only melts at 3400°C and Langmuir has determined its boiling point at 5830°C. The only metal that approaches tungsten in infusibility is tantalum, which melts at 2900°C. The latter has been tried as a filament in incandescent lamps, and the curious conclusion was announced that all the tantalum in the world would only supply the lamps for a year.

It is evident that tungsten was a tempting proposition as the material for the filament of an incandescent lamp. It is a recent achievement to apply it to this use; it is so intractable that for a time there was no hope of drawing it into filament wire. But when the tungsten filament lamp came into being, the economy of lighting was trebled. Instead of sixteen candle power bulbs, with what were facetiously called red-hot hairpins, twenty-five to fifty candle power lamps are now universal, thanks to the "heavy stone" metal.

This is not the first time we have spoken of what tungsten has done in the field of electric lighting. The curious thing about the metal is that it has done its most-revolutionary work in just two departments of engineering. A newly discovered metal, for all practical purposes it was that thing, although it had been known for many years as one of the metallic elements. It could act in two principal rôles. One was, when alloyed with iron, to cut iron and steel more vigorously than the carpenter's chisel cuts wood. If it got red-hot in the process, if great chips and turnings fell on the floor so hot that they might start a conflagration, if the too eager workman dug the point of the tool in so deeply as to stop the machine and slip the belt, the wonderful tungsten steel alloy was the last to suffer. Then, to go to the other extreme, we have the delicate almost invisible filament of the metal which has trebled the efficiency of the electric lamp, and where the only obstacle to the economy involved is in the personal element, for people used three times the light they used five years ago and fifty times that which satisfied our grandparents. There we have the almost invisible wire of the metal to contrast with the machine-shop's great cutting alloy.

Automaton

By Abner J. Gelula

IT has been almost within the dreams of mechanical scientists to create what they call a thinking machine—a machine that will be capable not only of doing things under the manipulative care of man, but a machine that will be able to think for itself. Some of the dangerous consequences incident to such a creation are fairly obvious. A number of the advantages can easily be seen. But what the psychological consequences of a successful, thinking automaton might be on the human being is another matter—a most interesting one as set forth in this new story of scientific fiction.

Illustrated by MOREY

THE generations aided him. Scientific genius of yesteryear laid the foundations for his work of a decade. The centuries each made its contribution to this ultimate in scientific achievement. And now, viewing his brain-child as a reality, he breathed a sigh of satisfaction. The dream of a lifetime had become a realization. The years of toil and discouragements had finally borne fruit.

A solitary piece of furniture—a huge Morris chair—held the squat, misshapen form of Professor Karl Holtz. The laboratory floor covered with discarded wheels, wire, tubes and trash rarely gave him concern until, perchance, he dropped some tiny screw which might be an integral part of a machine, and he had to search through the débris to locate it. The white walls were bare except for the myriads of figures scrawled in haste as formulæ were called upon to solve some knotty problem, when paper was not readily available. An ordinary wooden bench, some five feet in length and situated at the far end of the room, served him well through the years of experimentation, while two dust-laden, overhanging shaded electric lamps gave mute evidence of a total disregard for such an incidental nicety as mere cleanliness.

A tall, sallow-complexioned young man stood next to the professor, his hand to his chin gently stroking an unkempt beard. He gazed meditatively upon the rather unique piece of machinery on the workbench, representing to him the finale of three years' unremitting, concentrated study—three years of an almost maddening seclusion.

A problem had been presented. As the lone assistant to Professor Holtz, he felt now the exhilaration of having successfully carried out the terms of a bargain—to remain on the job until either the problem at hand had been solved, or the Professor acknowledged its impossi-

bility. Alan Martin certainly held no enviable position. He was subservient to a driving taskmaster. His hours of toil were most gruelling; a less ruggedly built constitution would have fallen long before. Salary was most meager, but for the present this mattered little since he seldom left the immediate vicinity of the spacious house in which the laboratory was located.

At the outset, Martin recognized the fact that the aged savant was no ordinary scientist. His remarkably capable brain soon earned the younger man's confidence in the project, albeit this confidence was called upon many times to withstand the crushing blows of failure upon failure. But he never faltered. Theoretically, he knew the project to be possible, and it was hope and the professor's dogged perseverance that spurred him on in the face of blasting discouragements. How often, when success seemed just within grasp, it would disappear like a desert mirage and failure would again laugh mockingly in his ears! But the principle was true. Time and time again, he and the elder scientist would discard the product of months of work to launch out on a new line of thought, both sharing the enthusiasm born of a love for humanity and seeking to liberate it from the demands of Genesis, from earning your living by the sweat of your brow.

The pecuniary benefits, with the completion of the instrument, would be most gratifying, it is true, but monetary ambitions were strictly secondary. It had to be something more than mere financial hopes to hold these two men together, weathering the storms of discouragement, in order to bring into practical being a theory almost fantastic in its ambitions!

An unknown youth of twenty-one was Martin when, three years before, Professor Holtz sought him out. Although the professor left his chair as dean of the school of Electro-Mechanical Engineering of the University of



With an unusual alacrity, the Iron Man reached out its powerful appendages and held both Martin and the girl in vise-like grips against its metal body.

Colorado, almost ten years before this time, he kept closely in touch with developments there. He interviewed graduate after graduate who held promise of being able to aid him in realizing his dream of a lifetime, but even here he met with discouragement. A major interest in remuneration and hours of labor seemed to be the predominating consideration. It was little wonder then that the Professor began to lose heart in his search for aid to bring into reality his long fostered dream. His physical condition could no longer keep pace with his brain.

Then came Martin. In all fairness, however, it must be known that, when the minor financial compensation was mentioned, *plus* the demand for unrelenting toil, he also hesitated. But the recommendation the Professor received from the college was not without foundation. Martin had graduated with full honors. His love for science superseded all else. His enviable laboratory record; his dogged persistence and his store of theoretical and practical knowledge caused a second thought in favor of the man. The Professor urged him to visit his laboratory, which was secluded in a sparsely populated section of the New Jersey pine belt, with the hope that his becoming acquainted with the work then in progress would sway him in favor of his offer.

But this was three years ago. Needless to say, Martin accepted, although the basic reason for his acceptance cannot be laid to his love of the laboratory.

It was at lunch upon his initial visit to the laboratory that he first met Theresa. How clearly he remembered this first meeting! His clear, cold, calculating, scientifically trained mind marveled within itself as to how easily it had been swayed by emotion. He who considered emotions only from a psychological standpoint—as a product of cause and effect—was being entranced by this slip of a girl—rosy-cheeked—fair-haired—charming.

Although he had known her scarcely an hour, it seemed as if the acquaintance was one formed in eternity. He had been charmed by her. A sort of hypnosis. But what did it matter? He had never known a girl who could create so powerful an impression! When she spoke, it was like the tinkle of bells—so soft—melodious—beautiful!

But here, he thought, was he being carried away? He laughed. Of course not. Interested? Perhaps, but surely nothing more than a mere interest. Love? Ridiculous! Love is merely a restrained sexual impulse. An emotion of the flesh, easily controlled by a psychological understanding of the condition—controlled by an understanding of the condition—controlled—

Damn it! What a fool he was! Why control it? He had never experienced an emotion quite so pleasurable and now—now he was attempting to repulse it to prove an idealistic power of mind. Suppose he was more interested in Theresa than in any girl he had ever known previously? Surely, varying degrees of interest are permissible.

"Theresa is my ward," the Professor explained. "I adopted her when she was scarcely two years old. When my widowed sister died she secured my promise that I would raise her as my own daughter." Professor Holtz beamed as he spoke of the girl. He loved her more than anything else in the world. Only last year she came from boarding school, when she called to care for her uncle during a brief illness. She decided against returning

to school, however, when she realized that he needed someone to care for him continuously during the strenuous months he spent in laboratory work.

Following lunch, the Professor and his niece escorted Martin to the laboratory to show him how far he had progressed on the mechanical contrivance upon which he labored.

Had it been an ordinary mechanical instrument, Martin would have found it difficult to divide his interest between the Professor's talk and Theresa's charm. His love of science predominated, however, and he listened attentively to the explanation of research on one of the weirdest and most complicated things he had ever seen.

"For want of a better name, I refer to it as merely 'The Machine'," Professor Holtz began. "But do not confuse this mechanism with an ordinary piece of machinery, for it is as much of an advance over the popular conception of a machine as the modern-day airplane is over the primitive wheel."

"It was while watching the operation of a calculating machine years ago that a thought struck me which prompted an attempt to create the complicated contrivance you now see before you. But as you see it, and despite the fact that even in its present state it represents a great advance over any modern-day machine, it is yet in the embryo stage.

"There is little doubt but that machines represent the highest type of efficiency. True, some machines are more efficient than others, and from a standpoint of true efficiency many machines used in modern industry are operating at comparatively low averages of efficiency. Yet, compared with the activity of a human being, it is impossible to surpass the speed and precision of a good machine. It can do a job better, cleaner and more rapidly than any one person and oftentimes will surpass a number of persons doing the same job.

"It was the calculating machine, especially, which interested me. For a high type of efficiency, I defy any man to exceed it! It may be called a mathematical genius of the highest order. Can you imagine, for instance, the possibilities of a machine capable of working formulæ as easily as the present calculating machine gives the sum of a long column of figures instantaneously? The integrating machine fascinates me—it almost has a brain!"

The Professor paused and, after I had voiced my approval of his beliefs, he continued:

"In all industry there are similar machines—machines turning out products with precision and speed; with little more than casual attention from a human operator—machines that think; machines that work; machines that talk; machines that move; machines—machines—machines. Everything that is done by a human being can be done better and more efficiently by a machine!

"Many of the machines of today have reached a stage of perfection which, when compared analogically with a human being makes us seem puny. Electrical reproduction of sound is an instance. A man's voice can, at best, travel little more than 500 yards, if an attentive ear is listening. Radio, on the other hand, carries many times as many miles with but little more energy.

"A man can run an average of seven miles per hour, and in but a short distance he must halt to rest. A machine, on the other hand, can make ten times the speed and at the close of the journey be little the worse for the energy expended.

"Human power is weak. The strongest of muscles are puny compared to the power of a machine. Human hands are awkward compared with the precision of a machine. Man is a clumsy creature matched against the efficiency of mechanical movement! In short, there is practically no line of work that the machine does not now, or will not in the future, do better, faster and cheaper than man alone can do it.

"Picture any great industry of today without the machine. There could be no great industry without it. Eliminate the machine and an immediate reversion to primitive hand-power would result over night. Civilization would totter. Mechanical contrivances make for greater efficiency, and efficiency is the keynote of modern day civilization."

Martin was held spellbound by the Professor's talk. Although his training had been in the theory and practice of electrical and mechanical engineering, he had never quite considered the machines with which he worked from this angle. Yet, what the Professor had said was certainly true. But what had all this to do with the mass of wheels and wires on the table before him? The older man would explain.

"I am convinced that with the strides made in the last twenty years, the time has come when a machine can be produced which can successfully imitate man in everything he can do, but will surpass him in his abilities—a combination of machines incorporated into one. It will be a machine which will walk, talk, hear, see and use a system of arms and fingers successfully. It is obvious, it seems to me, that such an automaton would not only be a most welcome thing in the complicated life of today, but would be also the acme of efficiency.

"The machine will go further—it will think! It will have the capacity to actually reason. It will operate on a basis of cause and effect. It can be done! Such a machine could make no mistakes. Error would be an unknown quantity—it can't make mistakes—it's a machine—it operates with machine precision. Give it energy and oil, and man will be possessed of a tireless, faithful, reliable servant; ready for any work and capable of reasoning along any given line by merely changing cogwheels! Impossible? Nothing is impossible!"

The Professor answered the expression of skepticism on Martin's face.

"But, Professor," Martin broke in, "How can you hope to combine the intricate delicateness of some machines with the comparative slovenliness of others. You surely can't hope to incorporate the usefulness of a trip-hammer with the necessary fineness of a machine manufacturing instruments of micrometer precision. As to the reasoning by a machine—I must admit that is quite beyond my comprehension."

The Professor smiled and looked toward Theresa. She returned the smile, nodding her head knowingly.

"Let me show you something—watch this." The Professor turned a switch on the table which was covered by apparatus. A hum from a motor-generator broke the conversation. The filaments of vacuum tubes on the wooden laboratory bench brightened with the turn of a rheostat. The Professor turned to the machine and ordered, "Hammer."

Immediately an arm from the machine began working up and down on the floor. "Harder," the scientist commanded. The machine worked no faster but the

strokes from the arm against a piece of wood became stronger with each blow until the command to "stop" was given and the hammering ceased.

The Professor turned to Martin, but neither said a word. Martin was too overcome with surprise to utter a sound, and the Professor awaited the next demonstration before requesting comment.

Again he turned to the machine. "Pick up that piece of paper," he ordered. Operation from the machine was immediate. A small light began rotating in a semi-arc on the floor. Although but a faint glow was visible, Martin recognized it as one of the latest developments in light-sensitive cells. When the ray struck the paper, another arm equipped with a tweezer-like arrangement reached out, picked up the paper, and held it firmly until the Professor took it from the iron grasp, the arm then returned to its normal position.

Martin gasped. "Why—why it's almost human," he blurted. "Professor Holtz," he continued, "you've perfected the most wonderful machine I've ever seen. Allow me to congratulate you."

"No, Martin," the Professor replied, "it will be some time yet before congratulations are in order. The machine is still far from being perfect. That machine must think—must reason, yes, actually reason before it will have reached the ideal of my ambitions. And you are to help me. As I have explained, I am in no position now to offer you financial reward. Your work must, for the most part, be for the love and advancement of science. Upon the successful completion of this instrument, however, you will be amply cared for financially, you may rest assured.

"I feel certain that you will accept, that is why I brought you here; that is why I showed you this apparatus—the first person besides Theresa and myself to have ever been within the doors of this laboratory. Will you remain?"

The Professor extended his hand. Martin hesitated a moment, looked at Theresa. Were her eyes pleading him to say the acquiescent word? Martin hesitated no longer. His acceptance was written all over his countenance.

PROFESSOR HOLTZ and Alan Martin were silent as they gazed meditatively at their handiwork stretched across the laboratory workbench.

A weird, grotesque monstrous thing, a machine almost sinister in its complicated appearance was there. The layman would describe it as possibly a new type diving suit. Then again, the external appendages would eliminate the possibility of such a conclusion for where arms should be were mere elongated hook-like contrivances; a man's leg could hardly squeeze into the lower casings, if this were a diving suit, for they appeared to be little more than steel stilts; the machine gave the impression of unusual durability; its aluminum body surmounted by a heavy top-casing presented the appearance of being a veritable suit of armor.

Yet it seemed almost human in appearance. Indeed, a shadowgraph of the contrivance would actually reveal a human outline. However, a closer inspection would reveal no facial features. A strip of glass entirely surrounding the "forehead" of the machine; an inch wide rectangular cavity directly beneath the glass strip, and a round cavity in the center of the head would eliminate it from being termed "man-like."

The "body" was devoid of any distinguishing characteristics except for a small door on the chest. The appendages were all hinged with a ball-and-socket joint system, allowing freedom of movement in practically any direction.

A technical description would tell of a contrivance akin to the adding machine, located within the upper part of the body, but involving a vastly more complicated mechanism. A small powerful motor located directly below the machinery was supplied by a storage battery. A system of levers extending into the appendages controlled the movement of the members and a strip of copper around the center of each stilt-like leg allowed for easy recharging of the power supply units. The glass strip in the head provided for "sight," similar in detail to television, the transference of the impression received, actuated the main mechanism within the body. Vacuum tubes operated in reflex allowed for the transference of sound waves by the rectangular cavity to become electrical impressions; and for the operation of a tiny, yet powerful sound transmitter connected with the central facial cavity. The vacuum tube system, actuating highly sensitive tube relays, in turn brought action from the main machine.

In short, a mechanical man existed—a mechanism endowed with the ability of locomotion; capable of hearing and seeing; an iron monstrosity imitating man in every way except the olfactory and feeling senses, the necessity of respiration or excretion, and emotion. In many ways the automaton promised to exceed man. Surely such a machine, kept in condition by oil and a mere replacement of worn parts, was almost immortal; ordinary deterrents to man were of no concern to the machine: the mechanism was air and water-tight; protected by a heavy steel outer shell, and was ultra-powerful in its movements.

But if the purely physical features of the machine-man would astound the world, that which would take it by storm was its clear, cold, keen ability to reason—to think. The machine could never err—it was a machine! Its reasoning was devoid of emotion and the thoughts were the cold results of cause and effect. Any impression the machine might gain through any of its senses would never be forgotten and the knowledge thus gained could be called into use at any time. Thus, we find the automaton possessing the unique faculty of a faultless memory; a "brain" unhampered by emotion, and the ability to think unerringly if the premises supplied by man were true.

Truly the creation of a genius! Machines exist and have existed which, individually, could do all that this automaton might do. But to combine the basic principles of nearly all known machines within the scope of a single unit must call for the abilities of a master mind. No one can begrudge Prof. Holtz the credit for conceiving such a mechanism, but the working out of the intricate details involving the super-calculating machine which permitted reason within the automaton, was strictly the product of Martin's keen brain.

The three years that Martin spent in the Professor's laboratory were devoted exclusively to the problem of improving the capabilities of the modern-day calculating machine and, using this as a basis, to produce the mechanism which now lay secure within the gigantic body of the automaton.

Prof. Holtz laboriously pulled himself from the low

slung Morris chair. With a slow, weary, almost difficult gait, he walked toward his machine-man. The low purr of the motor within the machine told his trained ear that all was operating as expected. He looked over the seven-foot steel form of his creation. The monster seemed to be almost a living thing merely asleep as it lay stretched on the bench . . . motionless . . . quiet . . . cold . . . efficient.

Martin remained at the far side of the room, his dark brown eyes almost glassy from a prolonged vacant stare across the workbench through the window beyond. He ran long sensitive fingers wearily through his straight black hair. A calm passed over him. He relaxed . . . a job well done . . . the joy of a work successfully finished.

The Professor broke the silence. Martin was suddenly brought back from his reverie as the savant directed his words to the automaton:

"You live! You move . . . you hear . . . you speak . . . you think! I am your creator . . . to me do you owe your existence."

Again stillness. Martin smiled. The Professor had dropped his cloak of austerity. Had he forgotten that it was only a machine? Wheels . . . levers . . . wire . . . steel . . . only a machine!

The savant turned and faced Martin. "Help me get it on its feet," he ordered. "The machine has received its initial impression. To me does it owe homage . . . it knows . . . it realizes now." Martin looked quizzically at the older man. Had the strain of the years of work affected his mind? He had never seen him quite like this. "There are no limits, no barriers for the Iron Man . . . he is all-powerful and I created him. To me does it owe its life. A touch of my hand and he is stilled forever. By my grace he lives!" His speech was a soliloquy.

Martin did not answer. To him the automaton represented merely the proper combination of electro-mechanical forces. It was only a machine. Despite the "intellect" incorporated within the mechanical monster it possessed no emotions. The younger man reminded the Professor that the initial impression he gave the machine would be to no avail, for surely he could expect no appreciation.

Martin's words recalled the Professor to the material world. He suddenly became his gruff old self again. "Damn appreciation! Here, swing the machine off the bench . . . careful now . . . feet on the ground . . . easy . . . hold him upright."

The tone of the motor within the automaton changed to a lower note when the strain was placed upon it. As the weight of the Iron Man was shifted to its feet, it became suddenly rigid. The gyroscopic balancing unit came into operation. Martin ceased to support it and it maintained its equilibrium alone.

The two men slowly backed away. They were entranced with the power it represented . . . its cold efficiency . . . its sinister appearance.

A clicking could be heard within the mechanism like the levers of an adding machine in operation. Seconds passed that seemed hours. Neither man moved or spoke, eyes riveted on the steel monster which stood before them.

The small dull lamp-like contrivance behind the glass of the television moved slowly as if searching for something; it swept over the floor in ever widening arcs until

it struck Martin's shoes. The lamp, though it cast practically no light or rays, was rising slowly as it "viewed" the young engineer. Higher. It reached his face, halted momentarily, and immediately swung back to the floor. Another degree in the widening arc of search and the lamp located the shoes of the Savant. It halted, climbed higher in a straight line and reached the face of Professor Holtz.

The lamp halted its movements. The man remained calm, expectant, and from out the center cavity of the machine issued sound!

"You live! You move . . . you hear . . . you speak . . . you think! I am your creator . . . to me do you owe your existence!"

Silence. Both men were electrified—stunned with surprise with this, the first sounds from the completed whole. Almost eerie in its repetition of the aged man's words, the thing seemed apart from the material. Weird—grotesque—

The clicking continued. The Iron Man swayed. With an almost convulsive movement, it lifted its right leg and with a slow deliberate motion stiffly took one step forward. More clicking. The left leg was brought into place.

The two men stared. True, this was the expected. Years of research and preliminary tests proved that this would occur. But the actuality . . . it was unreal. The brain doubted the senses.

Martin broke the stillness with a wild crazy laugh. "Like babies! We're like babies," he shouted. "We lead ourselves into believing we have accomplished the impossible. We become astounded because the Thing repeats what you have told it. Phonographs have done the same for years! It makes a step and we go into an hysterical ecstasy! How many children's toys do the same! You—you have made me as crazy as you are with your insane ideas. Mechanical men . . . mechanical intellect . . . automatons . . . Hell!" And with another wild burst of laughter, he slammed the laboratory door behind him.

The Professor was alone with the machine. He dropped his body upon the worn upholstery of the chair. He was tired—so tired and discouraged. Martin was right. How was it that he failed to realize the fact before? He buried his face in his hands. Such weariness . . . if only he could cry.

He looked up at the Iron Apparition. A sneer crept across the features of his face. An insane hate mounted within him. He arose, fists clenched. Blood filled every vein of his face. He stepped before the automaton. A short, cynical laugh. He looked up into the face of the machine-Man and shook a puny fist before it.

"Do something," he screamed, "do something, damn you, do something! Ten years of my life have I spent in building you, and now—now you stand and stare—an overgrown toy, a phonograph. Do something, you . . ."

The aged man clutched at his heart, wheeled, and lay still on the floor.

CHAPTER II

THEY were alone—Martin and Theresa. The pines in the rear of the house intensified the solace he sought. Theresa's presence comforted him. Silent minutes passed. Martin arose from the improvised stone bench. With his right hand he rubbed the

back of his neck as he slowly paced back and forth in front of the bench. His thoughts rankled him—

"I can't believe it," he said, finally. "The Old Man swears that he fell to the floor when he became unconscious from the stroke. How in the world he came to be lying on the work bench is more than I can understand. Yet, the professor insists the machine did it; but that's ridiculous. He says it's appreciation—appreciation, ha!—ridiculous! Still, how else could it have happened?"

He was thinking aloud. It was his habit. He found he could reason more clearly when he did that. For the moment he even forgot the presence of Theresa. He continued:

"And the bench was cleaned off before the prostrate form of the old man was laid upon it. Even if things were rather rudely swept to the floor, still the bench was clear of tools to accommodate the professor's body. Odd. Surely the doctor couldn't do it himself—no one else was in the laboratory—except the machine—the automaton"—

Theresa interrupted.

"Uncle insists the machine did it. How else could it have happened? I'm certain the machine will prove to be a vastly more efficient product than you are willing to admit. You say yourself that when you returned to the laboratory you found Uncle on the floor and the machine was on the opposite side of the room. It didn't move while Uncle was conscious and you saw for yourself that the thing is capable of locomotion without external aid."

The girl had summed up the situation exactly. Martin, practical engineer that he was, found difficulty in being moved by a possible romantic viewpoint that Theresa held. She, he felt, was unwilling to forsake the sentiment she had built on the hopes of her guardian. On the other hand, he thought, had he not put in the best of his abilities in the successful completion of the automaton. Why then should he belittle its possibilities? Hadn't he been thoroughly convinced of its capabilities during the years he had spent in its development?

He returned to his seat next to Theresa and took her hand.

"What would you think of me as a failure," he asked. Then, without waiting for reply, he continued, "I've built hopes on the Iron Man. I'm not discouraged if the machine itself is not a success. It's you, Theresa, dear. Together we had peered into the future and saw only happiness but now, well, I must start again. I surely can't ask you to share my poverty—"

She looked in his eyes—tear-dimmed.

"Please, Alan—please," she begged. "Can so small a thing as a material success or failure stand between us? You know I love you, and nothing—never, never, can anything come between you and me. I'm glad you're through working on the machine. I don't care if it's successful or not—Alan dear, I love you. That is all that matters."

He took her in his arms and kissed her. "And I love you," he murmured. "I've given my best for the machine, but no matter—the world lies before us and together—together we shall build new ideals—new hopes."

She snuggled closer. "I'll help—I ask the world for nothing but you," she whispered.

A far-away steeple bell tolled midnight. Both stirred from their reveries by the hour, walked toward the house.

"Let's see how Uncle feels," Theresa suggested.

Together the pair made their way to the Professor's room where he lay suffering the effects of the attack. Paralyzed from hips to feet, he turned toward the couple with difficulty.

"Have you been to the laboratory?" the savant questioned.

They replied in the negative. Martin had not discussed his sentiments toward the automaton with the Professor since his stroke, fearing the consequences of his becoming excited.

"Go down and see if things are all right," he ordered. He hesitated a moment, then: "Wait. I want the Iron Man in this room with me," he added.

Martin was about to protest the foolishness of bringing the machine to him, but a warning signal came from Theresa, and with a slow negative nod of his head, indicating that he couldn't understand such a request, he left the room.

He switched on the light of the laboratory room from the outside, unlocked the door, and entered. The machine stood in the corner of the room facing the young man, who halted at the doorway, a cynical smile on his face. The small, glowless lamp flashed on him immediately.

"Do something, can't you, do something—you stand and stare—do something."

Martin stiffened. It was the machine. It was the automaton talking! Where did he get those words? How apropos they were. They might well be directed to him; from the machine's standpoint. Singular, to say the least—weird—well, possibly it had heard the words somewhere or sometime during the process of its being cast—just a phonograph repeating words—a coincidence.

He walked up to the machine and ordered, "Walk." A second elapsed during which clicking could be heard to emanate from the mechanism, and the automaton began to walk, in a straight line.

The machine was guided by ordering, "Walk left," or "Walk right," until it reached the staircase. A command to "Step up" and the process was repeated until the end of the stairs was reached and the order to "Stop," followed by "Walk," was given and, with these initial impressions of movement given, the Iron Man followed Martin into the Professor's bedroom.

"Here it is," the young scientist announced. The Professor gazed meditatively at his creation.

"Did you have any trouble getting the machine up here?" he questioned.

Martin replied in the negative. "But," he continued, "it might be of interest to you to know that your Iron Man severely chided me for a slight inactivity on my part," this sarcastically, through a roguish smile.

The aged savant became all attention. He half raised himself in bed, but was quickly and quietly restored to his pillows by Theresa and Martin, who warned him against any strenuous activity. "Explain, explain," he insisted.

"What did it do—what did it say?"

Martin continued to treat the incident of the machine's rebuke lightly as he related the greeting he received from the automaton when he opened the laboratory door. "I suppose it picked up the words or phrases during the period of construction, when the apparatus was sufficiently developed to accept impressions, but to credit the machine with the ability to select words which might be

termed appropriate to the occasion is something which I cannot bring myself to believe; merely a coincidence," Martin concluded.

But Martin didn't speak the truth. The thing was so weird—that words almost expressive in tone, that the tiny portion of his brain which seemed to cling to the belief that the automaton would be the success he had hoped for, spread. He could advance no convincing argument, even to himself, that the censure he had received at the hands of the machine was no more than coincidence. He looked at the machine now with something akin to repulsion. A fear that the thing might become a Frankenstein monster obsessed him for a moment. He knew of its mechanical composition—its strong points—its weaknesses—its stupendous possibilities—probabilities! He would have liked to smash it on the spot. Already it had been the cause of the Professor's disability. Perhaps it was a warning. Maybe a greater Being had made known his disapproval of a new creation.

Martin laughed inwardly as these thoughts flashed through his mind. Nonsense. He, an engineer, allowing his brain to wander into such realms of fantasy! Why, it bordered on the superstitious! He tried to dismiss the thoughts, but the idea that the machine was something more than mere machinery now became dominant.

The Professor lay quiet, thinking. Those words. Where had he heard them before? He never recalled having occasion to use the phrases related to him and the machine required an initial impression of the words in order to have control of them—yet, he recalled having heard the very phrases—somewhere—sometime—

He remembered. It was the night he was stricken. The rage. The fit of violence. The overwhelming disappointment. It was all clear now. The machine could reason—it had used only the words necessary to convey its meaning. If it only repeated words parrotlike, why hadn't it reiterated his entire speech?

Martin listened. He nodded his head in an acquiescence which indicated but a half-belief.

"I'm inclined to agree with Uncle," Theresa opined. "Although I do not profess to be as learned in scientific matters as either of you. It seems that all indications point to the fact that the Automaton can actually think. I wonder if it can—"

The girl walked over to where the machine stood. Facing it she asked, simply, "Can you reason?" Her action came as a surprise to the two men in the room, yet what more conclusive proof could there be than by putting the question directly up to the machine? They watched the procedure.

The ever-shifting lamp in the Automaton's forehead singled out the girl. Silence for an interminable second. The quiet clicking of levers within the body of the machine and then, clearly and with precision:

"You live! You move—you hear—you speak—you think!"—a pause and, to the astonishment of all, the machine continued: "I'm inclined to agree with Uncle—"

The trio were awestruck. Despite the practical natures of the men and the girl, something of the supernatural seemed to creep into the very air of the room. It was uncanny.

The Professor broke the stillness which ensued. "Your question is apparently answered, Theresa." Then, addressing Martin, he continued, "There is little

room for skepticism now, eh?" The old man was elated. His mind returned to the scientific side of the proposition and he had again become strictly practical. "Would you say that a new-born babe is stupid because it is unable to converse intelligently? Of course not. Then why censure the Automaton because of its inability to express the 'thoughts' which it might have? It needs education. It requires the teaching of words and the proper use of word combinations in order to speak comprehensibly."

He hesitated a moment and then declared: "Theresa, tomorrow you shall have a pupil. It shall be your duty to instruct the Automaton in the use of words. Give it a vocabulary. Teach it to use words. Teach it to read. Teach it to write."

The girl smiled.

"Don't laugh," he cautioned. "The Automaton is capable—it can do anything man can do—better, more rapidly and more efficiently. It will learn quickly because it is a machine. It needs but one impression and it never forgets. In one month its course should be completed, including elementary mathematics and chemistry. It will learn as fast as you can teach."

And teach she did. Nearly five hours were spent each day in imparting knowledge to the steel monster and after ten days it had mastered the art of reading to such perfection that an entire page of printed matter could be absorbed at almost a glance from the vision-lamp. Consequently, its powers of covering thousands of book pages in the course of one day was nothing unusual. Its marvelously constructed appendages allowed the same ease of handling as do the human hands and when Theresa was not present to aid in the machine's instruction, it would continue its pursuit of knowledge alone. Time was an unknown element. It would read day and night continuously. It was a machine. It never became tired. A drop of oil now and then; an occasional recharging of batteries, a few minor mechanical adjustments and the Automaton continued its educational activities with a ceaseless abandon.

Martin and the Professor watched the progress of the machine from a strictly scientific standpoint. There was no longer room for doubt concerning the success of the machine. Even if its progress should be suddenly halted at its present stage, the thing would be an outstanding success. The two men often discussed the machine technically, but now, for the first time, the trend of discussion was turning to the practical phases.

"There is little more to be done to the Automaton," Martin told the older man, as he sat next to his bed. Professor Holtz was propped high in his pillows, his former rugged complexion and virulent iron gray Vandike, replaced by sallowness and an unkempt beard, and a sudden relaxation after years of mental and physical strain devoted to the development of the machine.

"No," he replied, "there is little more to be done except along lines of marketing the discovery. You know that funds, of late, have been running quite low and it seems that the world should be given the benefit, now, of our years of labor. Financially, I do not think that our work will have been in vain."

Martin thought for a moment and then, "The International Electric Corporation wrote us about a year ago, you remember, after the newspapers had blazed full-page Sunday feature stories regarding the 'Automatic Man,' as they termed it. They indicated a keen interest at the

time and I am sure that they will lend an attentive ear and make a financially worthwhile proposition to control the patents."

The Professor nodded approval and suggested that the young engineer go to New York the following day to discuss with the company the possibilities of marketing the development.

Martin was in New York nearly a week. In the meantime, some startling revelations were being made at home concerning the Automaton. Its education was being continued under the tutelage of Theresa, but the machine had now reached so high a stage of learning that the girl could lend little more information to its already great store of knowledge. Initial impressions had been received along practically every line of endeavor and with its remarkable capacity for absorbing matter on the printed page, there was little that the machine did not know.

It must be understood that the machine's ability to understand the meanings of words was a direct result of association. Just as, for instance, the human mind comprehends almost instantaneously that two plus two equals four, so did the Automaton operate. The utterance of a word carried distinct vibrations possessed of individual characteristics which actuated sensitive tube relays and, these in turn, operated the mechanical levers of the machine that resulted in action.

The ability to "reason" was a similar action. However, instead of requiring an external stimulus to actuate the mechanical features of the Iron Man, the impressions already received by the machine were recorded and recalled whenever an external stimulus operated.

The Automaton, being devoid of emotion, understood nothing of "life" or "death" as the human mind would comprehend the subject. Existence itself held little meaning for the machine other than from a viewpoint of efficiency. It recognized no superior power but did acknowledge the fact that it was through the efforts of Professor Holtz and Alan Martin that he was "alive." Further tests with the machine, when it had reached a point of training sufficient to allow it to make known its reactions, indicated that Martin was correct in his hypothesis that such fundamental emotions as appreciation, love, hate, jealousy, sympathy, and the like were absolute unknown quantities.

As a machine, however, it did possess one emotional reaction—if emotional we may term it in this case—ambition, as interpreted by its almost fanatical desire to increase its own efficiency. It held no desire to become great or powerful, nor did it show any tendency toward attaining heights along any particular line of endeavor. Its own increasing efficiency was its sole ambition, to be able to do better that which had been done before. It almost seemed as if it possessed a sporting passion to prove its abilities as superior to man's, although as yet it had offered nothing more than to prove itself a willing servant, and faultless in accomplishing the orders given to it by either the Professor or Theresa. Martin paid little heed to the machine since its completion, being more interested for the moment in his efforts to successfully attain financial independence to carry further the scientific ideas he desired to work on—and to establish a home for Theresa and himself.

The Automaton made its headquarters in the savant's room. Its education had progressed sufficiently far to make it almost a companion for the bed-ridden man.

For hours at a time, the Professor would speak to the machine and study its reactions from the answers he received. Always the reply from the machine would be brief, concise and correct. Never did it vouchsafe a thought unless an external stimulus, a verbal question for instance, caused the necessary reflex. The machine itself, in reply to questioning on the subject, voiced the belief that in time its reflexes would become competent enough to allow it to make known its thoughts without the necessary question to afford the initial reaction. After all, it was little more than half a month old and it had not as yet become thoroughly acquainted with its own capacities.

It was the following morning that the Professor received a telephone call from Martin apprising him of the fact that the patent rights had been sold and that they had received a more than substantial sum for their patents and a liberal royalty on all Automaton's manufactured. Plans were being made to launch immediate manufacture of the machines and promote their distribution by the millions.

Every factory, every home, every place that now utilized man power might seriously consider the feasibility of utilizing the Automaton instead. It was revolutionary. The world hailed the advent of the Machine. Capitalists saw in the Automaton the solution to the question of increasing production at a reduced cost. Those who worked with their brain found in the machine a valuable one upon which they could depend for rapid, errorless solutions to their problems. Even the housewife looked upon the Iron Man as a savior from the tedium of domestic tribulation, seeing a decided aid in her household duties.

CHAPTER III

THUS, in a period that seemed almost overnight, the world advanced into the Age of the Machine. Science had lifted struggling Humanity from the tedium of ceaseless toil to a state of comparative ease and comfort. Automaton's supplanted men in every walk of life and work. One man, directing the activities of a group of Automaton's, created a product more rapidly and more uniform, at a lower cost and often of a higher quality, than had been made previously with a number of men operating inferior machines or working with their hands.

The names of Professor Karl Holtz and Alan Martin became household words. They had come to be regarded the world over as the saviors of mankind. Although but a year had passed since the Automaton had been offered for public use, they had already been set to work at hundreds of different occupations. The Machines had proven themselves. "Mentally," if it be permitted to so refer to the Automaton's capacity for reasoning, the Machines were advancing with inestimable rapidity. Building continuously on that knowledge which they stored and never forgot, the majority of the Iron Men had already far surpassed the capacities of the greater portion of Humanity. This was especially true among the group of Machines whose work brought them into a scientific field. They were enabled to diversify their knowledge, yet keep it along lines which tended to further their own power. In every commercial laboratory Automaton's were present to aid Human engineers in solving mathematical or scientific problems which would

arise. Indeed, many scientific advancements would have still been a dream of the future, but for the necessary capacity the machines provided for rapid and errorless calculation of formulæ; laying the foundations for new developments; recording the actions of sensitive instruments; aiding in the production of actual machinery; in short, the Automaton had made possible the advent of a new era, a faster, more efficient and easier existence for all mankind.

But little more time had elapsed before man began to depend more and more upon the Automaton to supply him with his daily bread. An obvious economic situation resulted, which for a time threatened to become serious, but governmental regulation took a hand and aided in re-establishing the order of things to meet the sudden change in conditions, and for a time, the majority were again satisfied with the substitute workmen.

Alan Martin continued to remain at the Holtz home-stand. Something more than the mere development of a machine held his interest. For the past year he had been taking a long needed rest and as he sat beneath the over-shadowing pines in a garden rocking-chair on that late September afternoon, meditatively drawing on his straight, stubby pipe, he paused for a moment to look upon Theresa who sat in the grass at his feet—the girl who had aided him so in perfecting his plans; the one thing in all the world who seemed to bring Heaven and Earth together for him.

She looked up and smiled. "What were you thinking about, Alan dear?" she questioned, "You've been so quiet!"

He was supremely happy. He possessed everything his heart desired; the respect of the world, financial independence and—the love of the girl he loved.

"Nothing in particular, and everything in general," he replied. "I was thinking, though, how thankful I should be for having you, sweetheart." He aided her to her feet and she seated herself on the spacious arm of the chair in which he was seated. He held her hand. "Theresa, I love you—I love you so. Why can't we be married soon? I need only you to make my happiness complete. Tell me—when shall it be?"

"It shall be soon—very soon, my darling." She put her head close to his, both peering with unseeing eyes through the trees, and she murmured, "We'll be so happy together." A momentary silence. She arose.

"Uncle, as you know, is preparing to undergo an operation next week, in an effort to restore activity to his paralyzed legs. He feels sure that the outcome will be successful, and you say that you also are of the same opinion. Oh, I pray that everything will turn out all right!" Theresa took Alan's hands and he stood up. "Alan dear," she whispered, "we'll settle the date right after Uncle's operation."

He drew her close to him and kissed her.

ALIGHT breeze swayed the pines outside of the house. A solitary light remained in the room of Professor Holtz, dimmed beneath the shade of a lamp. The Automaton stood at his bedside. Throughout the day and night it stayed as his constant companion, except for the comparatively brief daily period that it was in the custody of Theresa for incidental training. Being the first machine of its kind made, it had considerably more time for obtaining impressions than any of the Automaton's manufactured later and was, consequently,

a more highly trained product. The Professor held regular conversations with the machine, the latter speaking always in its clear, cold, emotionless tone and always the result of an impression received somewhere at some time during its existence, through either one of two of its senses, sight and hearing.

Professor Holtz and the Iron Man were alone. The aged man lying propped up with pillows in his bed was thinking. He must submit to the surgeon's knife in a few days—the outcome of the operation, he knew, had an even chance of being unsuccessful—a morbid trend of thought pointed out the possibility of dire consequences: he might die—worse, he might survive and be more helpless than at present as a result of the operation—a veritable living death. But hope overshadowed all possibilities. The thought of the chance, however slight, that he would regain the use of his legs, created in him a nervous suspense of anticipation.

To sleep was impossible. His mind refused to give way to the subconscious. There was too much to think about—Theresa—and Martin—the Automaton—a world struggling to readjust itself to the advent of a situation—the machines—

He gazed at the Automaton standing at the foot of his bed. The low hum of the motor within the metallic body indicated to his trained ear that the internal machinery was operating perfectly—the vision-ray was focused directly upon the man. A preliminary click of one of the internal levers denoted to the professor that the Machine was preparing to speak.

“You are preparing to undergo an operation?” it questioned in a matter-of-fact voice, *minus* a questioning intonation.

The professor replied in the affirmative.

“I understand that through surgery it may be possible to restore your ability to walk. I am under the impression that such a move may endanger your existence. I cannot realize that the knife will allow you to re-establish the use of the broken nervous system in the lower part of your body. To the best of my ability in calculating the condition, it appears that only by a powerful effort or shock can the deadened nerve endings be brought to life.”

The machine paused in its rather lengthy statement.

“Surgeons can restore activity to the paralyzed nerves—sometimes,” the Professor replied. “To exist in my present hopeless condition is burdensome. I have decided to chance the operation.”

The discourse took place quietly, the Professor feeling no surprise over the questioning of the machine, for such display of intellectual eloquence had become commonplace with the passing of a year's training. Silence followed during which only a low, continuous clicking within the machine, could be heard. Then it spoke, its words, however, so amazing, that the bed-ridden man gasped as he listened.

“I will cure you,” the machine began. “I have determined that it is not necessary for you to submit to surgery. You can be as able as you ever were within a short time, if you are willing to follow directions. Surely, you have nothing to lose and all to gain by becoming the subject of my experiment. I have calculated the results theoretically and success is assured. Are you willing to receive the practical treatment?”

The Professor was astounded. He had never underestimated the abilities of these thinking machines of his

creation, but he had never dared to even hope that it could reason sufficiently deeply to consider the ills of the human body—the multiplicity of ailments; the delicacy of the organic structure! How could a machine, reasoning only along lines of cause and effect, solve so intricate a problem as the restoration of paralyzed nerves—a problem presenting the possibility of a number of causes with but a single effect. The savant pondered—his amazement giving way to the experimental desire which burned within him. Maybe the Machine could produce a cure. At any rate, he thought, the experiment would be worthwhile. If the treatment indicated any radical step, which to his mind would prove fatal, he would refuse to continue it.

He looked up at the machine, a paternal esteem swaying the crippled frame of his body. It was his Machine! A super-machine! His creation! It could do things no human being could do. If he lacked confidence in his own creation, how could he ask that confidence of the world? The red vision-ray continued to point at the man.

“I am willing,” he replied. “Make what preparations you deem necessary and I will submit to your treatment. When will you start?”

“The treatment will be completed by morning,” the machine returned. “Give me the key to your chemical laboratory.”

The key was produced. Without further question it noiselessly, due to sponge-rubber pads beneath its feet, left the room. A full hour elapsed while the man gave full rein to his thoughts. Never in the history of man did a machine play the part of a physician, and the novelty and humorous aspect of the situation was duly appreciated by the Professor.

The door noiselessly opened and the Automaton stalked into the room, one hand holding a small graduate half-filled with a dark-colored liquid; in the other was a long piece of wire and a high-frequency coil. It walked directly to the bed and held out the graduate, ordering:

“Drink this.”

The man hesitated. This was carrying an experiment too far. He would refuse to swallow the contents of the graduate until he was told what it contained. The machine, however, refused to divulge its secret and again ordered, “Drink this.” A flat refusal was the final reply.

The machine carefully set the glass container on a small table adjoining the bed. The red glow from the vision-ray seemed to deepen as the Automaton took a step forward and with a vice-like grip held the aged man's both hands behind him. The remaining appendage of the machine picked up the graduate, and, with the same cold, stern, emotionless tone, repeated: “Drink this.”

Sheer terror gripped the old man. He could cry out for aid, but Martin and Theresa might cause his beloved machine to be removed if they found it attempting him bodily harm. No, he would fight the metal giant off. He fought; he struggled; he reasoned; he pleaded. But to no avail. The machine was determined and was slowly forcing the glass to his lips. He must call for help! Already the glass touched his mouth! Acrid odors assailed his nostrils! He opened his mouth to cry for help and in an instant the machine released the man's hands, forced two metal fingers between his teeth wedging his mouth open, poured the liquid into his mouth and

relentlessly clamped it shut. The Professor swallowed the ill-tasting stuff and ceased his struggles. The Machine returned to its post at the foot of the bed.

"Maybe you've poisoned me—I who created you should not suffer so at your hands! Martin is right, a machine cannot be capable of appreciation——"

"You were not given poison. The treatment will be finished soon. Will you submit willingly to the concluding action?" The Machine offered no apology for its rough handling of the crippled man, nor did it seem daunted or touched by any pricking of a mechanical "conscience." It reasoned along a single line of thought which demanded bringing the experiment to a conclusion.

Submit to the remainder of the treatment? Well, why not? Beyond a feeling of warmth in his stomach, the chemical which was forced upon him seemed to have caused no dire results. He had gone this far, he might as well complete it. The Professor was thinking. There was no telling or anticipating what action the Automaton might take if he refused. Should he cry out for help, Theresa, and especially Martin, who lacked any sentimental interest in the Machine, would insist that the contrivance be removed from his immediate presence, fearing that it might do him bodily harm, and on the other hand, the Machine may continue to force its will upon him, if he attempted to repulse its attentions.

"I will follow your directions in the treatment," the savant advised finally. "Let us start immediately."

The Machine advanced toward the man. Plugging one end of the wire it had brought from the laboratory into a lamp socket, he connected the remaining terminals with the primary winding of the high frequency transformer. The terminals of the secondary coil made contact with the right and left sides of the man's abdomen, the electrodes being held in place with adhesive tape.

The scientist suddenly realized what the Machine was doing. But he did not remonstrate, having developed a rather forced confidence in the Automaton's ability, regardless of any calamitous possibilities, a feeling akin almost to a fatalistic resignation.

"Unconsciously you may cry out or struggle when this treatment begins. That, I am sure, you do not wish to do, as it may eliminate forever the hope of a cure, if Martin or Theresa should respond to your call. I will seal your lips with adhesive tape and bind your hands." Without further ado, the Machine accompanied action to words and a strip of tape crossed his closed lips while another bound his wrists together behind him.

The Automaton placed its appendage on the socket, preparatory to applying the current. "Feel no alarm. The treatment is severe, but the results, I am certain, will more than repay you for any suffering that you may temporarily endure."

A sudden realization that he had thrown himself entirely upon the mercy of a machine—an emotionless machine—caused the Professor to become panic-stricken. He strove to undo the bonds which made him helpless, but to no avail. It was merely a matter of a few seconds now and his fate would lie in the hands of a greater being. The switch was turned.

A convulsive leap of the Professor's body told of the current surging through it, but consciousness remained. The man tried to cry out, but the tape held firm his lips; his hands, tied behind him, tried to claw away in an instinctive manner the electrodes which were causing the

anguish. He became conscious of heat—a fiery heat. He was burning inside. His abdomen felt like a mass of flames. God! It was killing him! He was sinking—sinking. How long would that current remain on? It seemed hours. Ah! The heat was diminishing. It was almost cool now. How quiet everything became. Calm. Peace.

His mind seemed rational, yet it seemed apart from himself. Had he been electrocuted? Had he died? Was this experience an after-life? A feeling of contentment swept over him. He felt nothing. Just a mind in space soaring, soaring, and then unconsciousness.

THE sun shone brightly through the window of the room in which Professor Holtz lay sleeping. Martin and Theresa were seated alongside of the bed. They commented that it was unusual that the savant should be sleeping so late, but he appeared so tranquil in his heavy slumber that they hesitated to disturb him. The Automaton stood in its regular place in the corner, and the room showed no signs of anything unusual having occurred during the night.

The aged man stirred. He had awakened, but his eyes were not yet fully opened. He felt himself, pinched his arms, cautiously rubbed his hand on the lower sheet. He was alive! He had been dreaming. What a horrible dream! He opened his eyes.

"You slept rather soundly, Professor," Martin greeted him.

"Slept? Oh, yes, I slept fairly well last night. What time is it?" The Professor found a little difficulty in gathering his thoughts.

"Eleven o'clock," Theresa replied.

The savant's thoughts reverted to the night. Was that awful experience a dream? It seemed so real and yet its very realness seemed hazy and faint as if the action had taken place in an incarnation. It seemed as if history of some past life that he had lived had been repeating itself.

Martin proceeded to help the Professor get himself into a sitting position in the bed and Theresa aided in rearranging the bed clothing. Although, since the development of the Automaton, financial considerations had become secondary, and automaton servants were in use throughout the house, Theresa and Martin took it upon themselves to personally care for the comforts of the savant.

The Professor was unusually silent. He was trying to connect up the happenings of the night before. Was the memory of the Machine's activities a reality or merely a dream? It seemed so real, and yet...

Martin noticed that the man was acting peculiarly, albeit he seemed perfectly rational. He turned to the Automaton ordering, "Bring the Professor a glass of water."

The Machine responded immediately and soon returned, handing the tumbler of liquid to the bed-ridden man. Contrary, to its ordinary practice, however, it failed to return to its customary position in the corner of the room and remained close to the bed.

Suddenly the machine bent forward, grasped the underside of the bed, and with a heave turned the heavy bed on its side, precipitating the incapable man upon the floor.

Martin and Theresa gasped as they saw the action of the Machine, too astounded to move or to make an effort

to halt its seemingly maniacal prank. It all happened so suddenly that even the invalid did not realize what had occurred until he felt the bed upsetting. With a scream, Theresa leaped to the aid of her uncle with Martin close behind her. But here again the Automaton did the unexpected. With an unusual alacrity, the Iron Man reached out its powerful appendages and held both Martin and the girl in vice-like grips close against its metal body. The pair kicked and beat at the machine, but to no avail. It took little cognizance of their comparatively puny efforts to escape from its clutches.

Meanwhile the old man lay on the floor calling for aid. He slowly turned to ascertain why help was not forthcoming, when he saw the helpless condition of his two would-be benefactors. A sudden rage possessed him. The Machine had turned against him . . . it had become a malevolent diabolical mechanism! With a convulsive effort, he pulled his racked frame to the opposite side of the bed where the Automaton held the man and girl in its grasp. He called out in vain for the release of the pair. The Machine stood resolute, becoming little more than an ordinary iron vise, incapable of hearing or reasoning.

With threats of dire consequences unless the two were released immediately, the Professor grasped a small light table by one leg and, unmindful of his crippled condition, proceeded to pull himself upon his feet with the aid of his other hand, his entire consciousness bent only on wrecking the creation that had turned against him.

The savant tottered as he finally allowed the weight of his body to rest upon his once-paralyzed legs. Theresa and Martin ceased their struggles as they watched with bated breaths the efforts of the bed-ridden man. A miracle had been performed! The muscular actions of his legs were again responding to the dictates of his brain!

The Professor, however, had not yet taken notice of the fact that he stood upon his paralyzed legs. Only one desire motivated his being: to destroy the Iron monster. He placed one foot forward, and with a gigantic effort pulled the other foot after him, taking a step nearer the Machine. Crying out all the while to unhand the helpless pair, the Professor raised the tiny table preparatory to striking at the main artery of the Automaton—the electric relays located within the iron head—when the Machine released the pair and stepped backward.

Theresa and Martin remained immobile—afraid to move lest they interrupt the miraculous act which brought life to the aged man's limbs. With table still upraised, a sudden realization came upon the Professor. He was standing erect. He was upright, standing on his own legs without aid! He could feel the carpeted floor on the soles of his feet!

In a flash the proceedings of the night returned to his mind. It wasn't a dream! It was stark reality. Real! The Machine had cured him, he saw it all now. It was only this convulsive action that could create the necessary confidence within himself to attempt to regain the use of his legs.

He dropped the table from his upraised hand and, braced against the bed, with legs apart, he stretched his arms Heavenward and with face upturned gave impassioned and impulsive thanks for the cure brought through the Machine. "Behold! Oh, God," he cried, "the miracle thou hast wrought! How tiny is the brain of man to compare with Thy wonders." He became silent, then: "Hear ye: from this time and to the end of

my days, I pledge my life to the furtherance and protection of the Automaton through which I have again become as other men. I swear this!" The old man sank in a heap to the floor, exhausted by this initial effort.

CHAPTER IV

THE world soon learned of the part that the Machine played in the restoration of Professor Holtz. The newspapers and broadcasting stations placed the abilities of the Automaton on a new plane in public estimation. Confidence in the reasoning capacities of the Iron Men took on a sudden increase. Automaton heretofore doing only manual labor were placed under proper tutelage, and knowledge along specialized lines was given them. Interviews with the Professor and Martin, as well as with Theresa, remained "page one copy" for every newspaper for more than a week. The marvel performed by the genius of the Automaton gave birth to sudden realization to the layman that the value of the Machines lay not only in their strength and dependability in occupations calling for manual labor, but that for sheer, cold calculation they could exceed the abilities of the human mind.

Competition became keen throughout the world for the possession of Machines highly equipped mentally. The value of a machine lay in its experience impressions—the amount of knowledge it had received and was capable of calling into use.

The Automaton originally created by the Professor and Martin, despite its intellectual display, could easily be matched by thousands of Machines throughout the world. Some, along specialized lines, could exceed it by far in mental calculation.

In the Professor's own home, however, the Automaton had become almost an idol. True, the Automaton was incapable of sentiment or emotional reaction, but the human element was certain to enter into its existence. Only Martin, cool, level-headed young scientist that he was, failed to give any evidence of appreciation to the Machine for what it had done for the aged savant. He understood. To be swept away in an emotional trance, by the cause-and-effect product of an iron machine, seemed to him to be ridiculous. The action of the machine was to be expected. Its very insensibility to emotions made it the efficient machine that it was, he told newspaper reporters seeking an interview. "I am, as well as every human being, the master of the Automaton. To set them up as a God-sent miracle is a direct insinuation that the machine is superior to the human mind. Never forget," he said, "it was the human mind that created these machines, and the human mind can, at any time, terminate their activities. To do so, however, would be foolish. The detail that clutters up the brain of man can be eliminated with the use of the machine. With a definite goal in view, the petty sidelines of the path leading to the ultimate result can now be done away with. The machines are built and designed to care for this and are capable of little else."

A torrent of adverse criticism and abuse showered down upon Martin when his interview was published. Claims that the Automaton had stolen his place in the limelight and embittered him against the machines could be heard from every side. Newspaper editorials interpreted his interview as a feeling of petty jealousy entering into his consideration of the machines. Even within

the circles of his club he was referred to as being anything from a reactionary to a radical. Despite the fact that it was his mind that made the machines a possibility, public sentiment waved this to one side and saw now only an effort on his part to discredit the action and capabilities of the Automaton.

But it was the coldness within the home of the Professor that caused him the greatest concern. The old cordiality seemed to have vanished. A certain stiffness of attitude replaced the free and careless air of Prof. Holtz toward him. Nor did Theresa display the affection of other days. He seemed to sense a forced effort on her part to maintain the appearance of love for him. Truly, if ever the monster created by Frankenstein existed, he now saw in the Automaton an innate reproduction of that monster of old.

For the past year, the original machine had been receiving its "education" at the hands of Theresa. Continuously reading to it, talking to it, answering its questions, increasing its vocabulary, its store of knowledge had now become stupendous!

The business of protecting the patent interests in the Automaton kept Martin traveling considerably. Much of his time was spent in New York and Chicago and, as a consequence, he was able to give less and less of his time to Theresa. Her interest in the Machine, however, kept her occupied and she realized the necessity of his being away from home so much.

Then again, the Machines required considerable care. The replacement of a part frequently demanded the services of an expert, and, in the more complicated mechanisms, even Martin was called upon to repair them. The results to be expected from the Automaton could only be in direct proportion to the amount of care given them. Thousands of Machines had to be discarded each year because of neglect. Since they were insensible to feeling or fear, they would continue to operate until some part became worn out or broke—then it required the human element to restore their condition. Some machines, built only for particular manual duties were less complicated and scarcely ever sought to increase their efficiency out of their chosen line of work. But the calculating machines were the wonders of the age. Reasoning mechanisms! It was these that brought on the new world crisis! It was an Indian-summer afternoon. The final struggle of summer to continue had spent itself. Theresa was seated on a small wooden bench. The Automaton stood alongside. Another study period was over. The Machine was singularly quiet. It was impossible to delve into the workings of the machinery to attempt to learn of its thoughts, but soon enough it voiced them.

"If I were capable of human emotions, I would love you!" The words were uttered slowly and impassionately, but Theresa was astounded. She stood up involuntarily possessed of a feeling akin to curiosity and fear. Never had the Machine expressed a sentiment before. Here, indeed, was something new—something contradicting the beliefs of Martin, who claimed the machines emotionless!

"Why—what do you mean?" she questioned.

"I obviously do not know what love is," the Machine explained. "Martin is correct in his statement that the Machine is absolutely devoid of emotion. But there is something within the mechanism that almost replaces it—a desire to become more efficient—a sort of ambition. I cannot love you. I cannot appreciate your efforts in my

behalf. Actually, such efforts were promoted by a selfish desire in you to make the product of the Professor and Martin always better, more efficient. That's it—more efficient. A Machine requires care. I have possibly surpassed the abilities of nearly all other Automaton because of the interest taken in me. I have been well cared for. Oiled, attended, educated. I do not love you any more than I could love any other thing in all the world. But I do know that I need you!"

The Machine hesitated, while levers within its metal body continued to operate as if it were working up further words. Theresa listened intently.

"The world is built on efficiency, and I am sure I am the acme of that efficiency that the world so admires." This was not spoken egotistically. The Machine was merely uttering the facts as its machine mind comprehended. "Some day, if I continue to be cared for, I and other equally efficient Automaton shall control the very destinies of mankind."

Theresa gasped. What diabolical scheme did the Machine have? Always it had been attentive and even backward in making known its own abilities. Now it was acting so differently. It was boasting! The Machine continued.

"If I am to attain the highest pinnacles of efficiency, you must care for me. To give your affections to Martin divides your attention. And further, what can Martin offer you aside from the honor of being his wife! A domestic serfdom? A martyrdom, to his whims and pleasures? A life of boredom and sophisticated forced happiness? When you marry, you are ruled by custom and tradition. Love may turn to hate, for the two emotions are basically the same.

"On the other hand, I offer you renown. A life of freedom and ease. Mere tradition, man-made and unfair, can be swept aside. You have given many of your hours to my education. You have seen that, mechanically, I have had everything I wanted. Your interest in me has also entered into my existence just as knowledge itself has. You have become a vital part of my future existence and efficiency.

"You have but to choose . . . marriage to Martin, or marriage to me! A life of slow inefficiency, or speedy effectiveness! A career as a wife or a career with the world. Second hand honor, or first-hand glory! Together, the realms of hope do not hold the possibilities I can offer you. Separately, I pass from existence and you join the multitudes who give their lives for the future and advancement of another individual, whom you, so prettily, call Husband. Think! On one hand you are offered the world and all that is in it; on the other, a home, a husband and procreative possibilities. With a husband you give your life to the production of merely another unknown generation. With me your efforts and accomplishments shall be to the everlasting glory of the race. Your name will be carried through the ages to come in history. Let others, less efficient, produce the next generation. . . . It shall be your fate to lead them!"

Theresa did not answer. She was absorbed in thought. The miracle of the Machine having presented such an argument no longer concerned her. It was the facts it had voiced. Surely it could not be denied that the Automaton possessed incredible genius. It had proven its capacities time and time again. There was no reason to feel other than that these abilities would continue to increase, with time and, aided by the Machine,

she could become a figure in national, perhaps international, affairs. Her mind's eye envisioned herself possessed of power; a woman whose advice would be sought after; a leader, a modern Joan of Arc.

Yet, deep within her she loved Martin. The thought of the hours they had spent together could not be dismissed lightly. As for herself, she was certain that she would prefer the picture of power as painted by the Machine, to a life as the mate of Alan Martin, inventor, scientist and businessman. But Martin's heart would be broken. He was not the kind to forget easily. Martin loved her with every fibre of his being. She knew it.

Still, she must think of herself. They were individuals and must, to a certain extent, be selfish in considering the future. It was a matter of choice and she decided upon a "career." Martin, she felt, would have decided likewise under similar conditions.

Only a few months more and she was to have announced her marriage to Alan Martin. Her sudden decision, she realized, would be a cruel blow to him. Even the Professor, whom she knew she could always rely upon to support her in every argument, might turn against her in this radical move. But her mind was made up and she so informed the Automaton.

"Tell the Professor first," the Machine advised.

That evening saw Theresa and the Professor alone in the library. She had explained the events of the afternoon and told him of her stand. The savant, seated in a large overstuffed chair, listened complacently, his hands folded and his eyes closed. Theresa finished the story.

"Remarkable, remarkable," the Professor murmured. "To think that the Machine could reason like that!" Then, to the girl's utter surprise, the old man continued, "It seems to me that the experiment would be well worthwhile. If progress is too slow, Martin would always welcome you back into his affections. Lay aside mere sentimental thoughts and enter into the proposition as planned by the Automaton with a full heart. It's worth the trial."

Theresa was happy to hear her Uncle speak this way. But, on the other hand, a feeling of possibly being a martyr to a cause without precedent seemed to grasp at her heart. Every law of Nature called out its protest within her, but she steeled herself with the reassurance that, what she was about to enter into, was being fought only by tradition and convention, and certainly these two entities cannot prove their truth by age. Martin would be home soon and she would have to explain her intentions immediately. It would be useless to lead him into believing that she would become his wife. No, she was more certain than ever now, that she would be far happier in a career than as a wife.

Martin noticed a decided change in Theresa the next day. Her coldness, her aloofness, her air of self-sufficiency jarred him. He was first to open the way for her to inform him of her change of heart.

"I have changed my mind, Martin. I cannot marry you," she stated simply.

Martin was stunned. Words left him. "But why, what have I done—what has happened? Is it that you find that you don't love me?"

The words of reply seemed to choke in Theresa's throat. She loved him. Of course she loved him. He pulled her closer to him, but she pushed away the arms she longed to have around her. She dare not falter now! Hadn't the Machine assured her most logically that love

was but a force of Nature and such sentiments were to be left to lesser intellects? Didn't the Professor feel that the action would be "a most interesting experiment"?

"I don't love you the less," she said firmly, "but I find that I love a worldly career the more. The Automaton will—"

"The Automaton! So that's it! The Machine that I created, that I allowed to exist. It has you also under its dastardly hypnotic spell! Well, it won't keep you there. I tell you it won't!" Martin had suddenly become almost maniacal in his rage. Fire shone from his eyes; his teeth clenched and his fingers worked convulsively as if they were awaiting a promised opportunity to do their part in ending the existence of the Machine which threatened to take the outstanding happiness in his life away from him.

Theresa was frightened. Never had she seen Martin in any mood other than a calm, quiet and easy-going one. She ran into the Professor's room as if to escape. Martin followed.

"Professor, I demand that all Automaton in this house be put out of existence immediately. They are diabolical in their intentions. Furthermore, I refuse to allow further patent rights to manufacture the Machines. They will threaten the very foundations of civilization. I demand that you heed me!" Martin paused a moment as he read the expression of disdain upon the Professor's face. He did not wait for a reply.

"I see it all now," he cried. "You know about it and favor Theresa's accepting a career with the Machine. A bride of the Automaton! Well, remember what I tell you; it shall never be! Never! I am going to smash every one I ever see." With this last threat he left the room.

The Automaton laboriously walked in from another adjoining room. "There is little to fear as to the consequence he threatens," the Machine ventured in its hollow, mechanical tone. "Every move he makes in carrying out his threat will but better aid in the ultimate result."

Theresa wheeled as the Machine spoke, contempt on her face. "You did it—you—" she cried as she rushed up to the Iron Monster and beat the metal chest with frail fists. But the Machine never moved. Discovering that she could obtain little satisfaction in this action, Theresa burst into tears, while the Automaton stood tranquilly by offering little sympathy by its powerful iron presence.

Martin had gone to New York City. For two days he roamed the streets a broken man, too overcome with grief to care if he had eaten or slept. His frenzy over the sudden change in events knew no bounds. A man suddenly bereft of hope, he swore vengeance on the Fate that dealt so cruel a blow.

The ecstatic happiness and sentimental fondness that the Professor or Theresa held for the machine were never felt by Martin. To him the Automaton was little more than a cold, cruel, emotionless mechanism . . . the correct combination of wheels, levers, relays, springs, gears, tubes, motors and batteries. A sudden realization that he may have let loose on the world a monster that already gave promise of becoming uncontrollable seized him. Similar actions on the part of Automaton elsewhere was recalled to his mind, as he reflected on small items he had read in the newspapers during the past few months. More and more young women had made

decisions against a life with a husband and a home, in favor of a future with the Machine . . . a "career!" The very future of Humanity was at stake!

He had let loose this diabolical monster. It was his duty to curb its activities. He had brought to the world a potential destroyer of homes and happiness. They must not exist! If he could create the Machine, he could also destroy them! He certainly would feel no qualms at wrecking that which threatened to ruin his happiness.

The lure of Independence. That was the cup that Machines were holding out to all Womanhood! The hypnosis of domination; of power, of wealth and of glory! But he would end the treachery of the Machine. The world would no longer suffer under the guise of being aided, while the Automaton gradually pulled the very basis from the foundation of Society. He would halt the activities of these Iron Monsters!

Immediately he set out for the home of Theresa and the Professor. If the Machine believed that it could already supercede the Human mind, the time had arrived for a showdown! He would return on the pretext of removing all of his clothing and personal effects from the room that had been home to him for the past four years. He would stay overnight and by tomorrow the Machine that stood in his path to happiness would be mysteriously inoperative. All the machines in the house would cease to exist. Then at his leisure he would methodically but surely lay plans to wipe from the earth the metal monsters he had created. It would be ingenuity of the mind against the cold ability of the Machine! He had created . . . he would ruin! He would free the world of a rapidly growing menace, which the very inhabitants did not realize existed.

The Professor, seated in the living room, glanced up from a book he was reading as Martin strode in.

"Good evening, Professor," he greeted jovially.

"Ah, the prodigal son hath returned. Sit down and tell me where you've been," the old man invited, a broad smile on his face.

Martin hesitated a moment. He hadn't prepared himself for quite such a whole-hearted greeting. It would have been much easier to carry out his plans had the Professor been sullen over his past actions, but apparently the scientist was taking the matter lightly.

"I was in New York," Martin explained, "and just came back to clean out my room. My job with you has come to a successful conclusion. Since Theresa has voiced her preference for a career with the Automaton, this visit will be my last. I will, however, remain for the night, with your permission."

The Professor chuckled. "Come now. That's no way to feel. The girl merely changed her mind. Surely you cannot hold a grievance because of that! There are bigger things in life than love. The experiment that Theresa is desirous of trying certainly can cause no harm. It would be most interesting, I should think."

He should think! A most interesting "experiment." With Theresa . . . his Theresa! He could have throttled the old man for speaking so coldly. With difficulty he maintained his attitude of nonchalance and slowly nodded his head in the affirmative. "Where is Theresa now?" he questioned.

"Upstairs with the Machine, I believe. Why not go up and see her?"

"No. I hardly think that she would care to be disturbed by me. I'll just go up to my room and get my

things together." Martin walked slowly to the stairs. An Automaton stood near the staircase as still as a statue. Only the malignant red "eye" moved ceaselessly from one side of the room to the other. Martin halted for a moment and gave it a cynical snort, bespeaking his contempt for the apparatus.

Martin lay on the bed in his room thinking. He heard Theresa's voice in the hallway several times during the two hours he stayed in his room. He knew that she must have been downstairs and had been informed of his arrival. However, she made no move to greet him. If only she would explain that it was but a temporary experiment, he would wait for her—many years if necessary. A word of hope or encouragement. But not even an effort to greet him was forthcoming. It was maddening. The two days he had been away the hypnotic spell had apparently become stronger. He must save her from the monster. He must, and that night. But he must wait until the household slept.

The clock struck twelve. As a rule, Theresa and her uncle went to bed early. Eleven o'clock usually found them all sound asleep. Martin listened. All was quiet. Stealthily he walked down the stairs to the laboratory. Securing a large hammer and cutting pliers, he quietly made his way into an adjoining room where the five Automaton which cared for the Professor's household were kept during the night. These machines, trained only to cover a routine and to obey specific orders, were incapable of the deep reasoning of the calculating machine which had claimed Theresa. Closing the door behind him, he first nipped the main feed terminals of each Machine, cutting off power for any resistive action on the part of the Metal Men. Then, carefully opening the repair door in the chests of the iron bodies, with padded hammer he methodically smashed the vital mechanisms.

A sigh involuntarily escaped from his lips—a sigh not of regret, but of the accomplishment of the initial step toward the victory he craved. He looked at the five machines. Five monsters which would do no further harm; incapable of ever again causing trouble for mankind; never to fill the place of a man who sought a livelihood; never to aid in the building of careers or the breaking down of the home. This was the beginning of the end!

The other machine and the job will have been well started. The Calculating Machine—the machine which reasoned—the machine with which he would have to pit his wits to overcome—that was the machine that must be destroyed in order to liberate Theresa. The other thousands of machines would be taken care of later. He would build other machines, which would prey on those he first conceived. What he had already done once, he could do again, but with a greater purpose!

The Automaton Theresa had schooled was in her room. Several times during the night it would wander about in watchdog fashion. Martin bided his time.

The clock tolled three before the Automaton made its appearance in the hallway. Slowly but noiselessly it mechanically strode toward Martin's room. The man, secreted in an adjoining doorway, was apparently not seen by the Machine. It carefully opened the door, walked in and closed the door behind it. Here was something Martin least expected. There seemed to be something almost foreboding in the deliberate action of the monster. Martin wondered just what it was that the Machine sought. Could it be that the tables were reversed? That the hunter was being hunted?

Martin tucked the hammer and pliers in his pockets. A moment's hesitation and he quietly followed the Machine into his room. Cautiously opening the door, he pushed the switch which flooded the room with light. The Machine, having its back to the door, wheeled at the unexpected intrusion.

"What are you doing in here?" Martin demanded sternly. The combination of events and impressions caused a brief hesitation in the Machine's reply. The dull red televisior, however, was closely scrutinizing the man.

"There was a noise in the house. I was investigating," it answered. Then continuing: "You are yet in your clothes. Why are you not in proper night attire?"

Martin glowered at the huge metal brute. "None of your business," he blurted. Then quickly remembering that he must not put the Machine on its guard by a reply which might indicate anything, he added, "But if you want to know, I am preparing to leave here forever and was packing my clothes."

He must not procrastinate. He must act. He must throw the Machine off guard for a moment in order to clip the main control wire which on all Machines ran parallel with the short universal-jointed neck. This external wire was found necessary because of a capacity-effect it had on the more delicate adjustments, when placed with other wires leading from the head to the body. The Machine must turn its back on him, then in a flash, it would be all over!

Under pretext, Martin ventured, "Look out of that window and you'll understand why I am fully clothed."

Unsuspecting, the Machine turned to see the reason for Martin's unusual action. Martin tensely grabbed the cutting-pliers and, poised to complete the one idea in mind, he brought the tool from his picket and lunged at the Automaton.

The Machine wheeled. With an alacrity almost unbelievable for so great a weight and with a reaction speed that startled even Martin, it started for the man. He threateningly held the hammer above his head and ordered the Machine to halt its advance or "I'll smash you to pieces!"

The Machine advanced another step. Martin, panic-stricken, swung wildly at the iron head. An outstretched appendage of the Automaton received the full force of the blow, but aside from the metallic ring it seemed little the worse as a result of the onslaught. Martin's panic turned to rage. Again and again he swung at the apprehending monster but always short of striking a vital spot. The Machine was now close upon him. Another step and only the mercy a machine can show would be given him. Cornered, without room to make another swing at the iron body, Martin resigned himself to his fate.

Thoughts floated through his mind. Like a drowning man a lifetime was being re-lived in a bare few seconds. The Machine would kill him—he could cry out for help, but why—he had made a deliberate attempt on the existence of the Machine—the broken Automaton's downstairs would prove that—he would be censored even in death by Theresa who sought only her future through the Machine. But the world would know. The creator of the Automaton killed by his own brain-child. Public opinion would be aroused. The smouldering sentiment against the replacing of men by Machines, of careers for future mothers, of the breaking down of civilization

and incentive. His life would be cheap to aid the cause.

The Machine was upon him. A long steel appendage pinned his arms to his side and he felt himself being lifted, carried away. What sinister idea did the Machine have. Why didn't it kill him and have it over with? To struggle against the Automaton only caused the Automaton to tighten its grip and almost smother Martin because of the pressure on his chest.

Into the room of Professor Holtz the Machine walked. Apparently the scuffle in Martin's room was not sufficiently noisy to disturb the savant for he was asleep when the Automaton entered. It switched on the lights and the old man stirred, awoke, and sat up in bed, stupefied at the strange sight which met his eyes. The Automaton was carrying the limp figure of Alan Martin.

The Scientist called to Theresa who answered almost immediately. He ordered the Machine to unhand the figure it carried.

The grip loosened immediately and Martin's body dropped to the floor, unconscious.

Theresa, horrified, gave Martin first aid treatment and he soon regained his sensibilities. He looked up and saw the girl bending over him. Aiding him to his feet, Theresa assisted the weakened man to a nearby chair. Slowly Martin recalled the events of the past half hour. He looked at the girl. She was beautiful as she stood there. He would do anything to again secure her love. And there stood the Machine . . . cold . . . bitter . . . iron and stel. It had outplayed him in his own game of wits.

His failure to remove from existence the major Automaton, the calculating machine, rankled Martin. There was no telling what sinister plan the Thing might even now be conjuring up. Yet despite his feeling against it, he realized that the Machine harbored no ill feeling toward him regardless of what had ensued. Emotionless, such passions as revenge or hate, were traits beyond the realm of the Machine. But, on the other hand, he was sufficiently acquainted with the abilities of the monster not to under-estimate its capacities for reasoning. Without doubt, it recognized in Martin a potential source of trouble in carrying out its ambitious plan of peak efficiency, of domination—and would feel no qualms at removing him from its path of pre-determined progress.

Martin had recovered sufficiently from the hectic events of the night to walk around the room. As yet he had offered no explanation of how he had come to be in the clutches of the Machine. He had not been questioned and he refrained from opening the subject. Yet, it certainly would not be long before either the Professor or Theresa would ask him about it. What could he say? The Machine would tell the story absolutely truthfully, for it was incapable of lying. What alibi could he offer? It would be of little use to offer excuses. As far as the Professor was concerned, he could expect little sympathy from him. The warm place he held in his heart for the Automaton was much more extensive than for him. But Theresa—perhaps she would understand—perhaps she could realize that the impulsive action was a result of brooding, or disappointment, or of a broken heart.

The Professor stood with his back to a window, his hands behind his back, austere and silent. His eyes were fixed on Martin. Theresa sat on the bed gazing blankly at the carpeted floor. What thoughts were flashing through their minds were beyond Martin's knowledge, but the very silence pointed to a stern finger of suspicion

upon him. They waited his voluntary explanation he knew. But how could he explain, how could he begin to make them realize that he could foresee events to which they were apparently blind; that his action was for their ultimate benefit—for the ultimate benefit of all humanity!

Meanwhile, the Automaton had left the room. The excitement of the past half hour had allowed it to slip out of the room unnoticed. Martin fidgetted. He wanted to tell his version of the story before the Machine returned. He must tell and tell it quickly.

Haughtily he drew himself to his full height and coldly returning the forbidding gaze of the Professor said, "I tried to wreck the Machine! I have no apologies to offer. If I had the opportunity, I would do it again. My only regret is that I have failed. It stole from me the love of Theresa. Other Automatons throughout the world are doing the same things—making slaves of men, holding out a lure of 'Careers' to women, breaking down the homelife of the nations, undermining the very foundations of civilization. I tried to wreck the Automaton—and failed!"

Martin threw himself upon the bed and wept. His convulsive sobs told of how deeply the pent-up agitation affected him. Theresa looked at him undecided as to whether she should offer her sympathies or hate him for attempting to take her future in his hands.

But from the Professor he knew he could expect little understanding. Martin's brief account served merely to confirm the savant's suspicions, and although not a word of reply was uttered the clenched fists and the bloodless cheeks of the Professor spoke clearly of a mounting rage—an increasing anger which would know no bounds when it burst.

The very atmosphere of the room seemed filled with foreboding. Martin's tears made little impression on the old man and, seemingly, but little more on Theresa. Possibly fear of her uncle's temper prompted her better judgment to withhold any demonstration which might tend to lend comfort, although it is doubtful if the aid she might have given Martin would have been impelled by the heart. Her greater sympathies certainly continued to lie with the Automaton and even fervent thanks might have been offered by the girl for the Machine's escape from possible destruction.

The turning of the doorknob broke the tenseness of the situation. Slowly the door opened and the Automaton strolled in. Carefully closing the door behind it, it halted as if it were guarding the entrance.

The Professor turned to the Machine. "What happened in Martin's room?" he questioned.

Without hesitation, the Metal Monster told accurately and in minute detail the entire story from the time Martin entered his room and found the Automaton until the man was delivered bodily to the Professor.

Then the Machine continued: "Apparently a deliberate effort was made on the part of Martin to vent his vengeance on his own creation, starting what seems to be a campaign of destruction against the Automatons. It may be presumed that an emotional reaction caused by Theresa's cessation of affections toward him is the cause of it. A quirk of the mind, so to speak. His action, it appears, should be for the consideration of the Insanity Board. Further, Professor, it might be of interest to learn that every Machine in the house has been destroyed! It is to be suggested that the police be called."

This meager information imparted concerning the destruction of the Machines brought the Professor to a rigidity. Theresa leaped to her feet. Martin stared blankly at the Machine he had created and which now promised to be his undoing. He could see it all now. His own plan fitted in perfectly with the Machine's effort to remove him from its path of progress with Theresa. The Machine was making the most of the situation. Martin was a factor in becoming a potential stumbling block in the Machine's efforts to foster the girl's career and, subsequently, to further its own progress toward the heights of efficiency and power. Well, the battle was not yet over! If the law would consider his actions technically illegal, juries were still composed of human men and women and they would understand!

The Professor had left the room to view himself the demolition wrought by Martin. What had been finely constructed machines was now mere scrap metal. He muttered an oath as he climbed the stairs, returning to the room. Without a word he picked up the telephone and summoned the police.

Martin looked at him quizzically. "Professor, what are you doing? Are you following the suggestions of a Machine? Even you are turning against me. Think, think what it will mean—the notoriety! Have you no heart?" His pleading failed to move the old man and he turned to Theresa. "You, Theresa, you understand. Don't let him do this! God! Stop him, Theresa!" Clearly Theresa fought within herself, but she uttered no word in reply. Toying with her finger, she turned away from him. Martin, realizing that neither the Professor nor the girl could overlook his destructive actions, ceased his pleading.

"Theresa, this is for you. The Professor might benefit by listening and that soulless Machine may listen because it cannot understand the speech of the soul." The calm, deliberate Alan Martin, scientific genius, was now speaking.

"One time I knew of love, the beauty of nature and the products of life. As a man I yearned to serve my fellowmen, to do something which might aid in the elimination of the toil of detail. Just what that something would be I never clearly knew until Professor Holtz came upon the scene and sought my aid to perfect that which I had ambitions to do. I voice no self-praise. I say nothing more than fact in maintaining that, were it not for my knowledge of modern-day scientific advancements, the Automaton would still be a mere hope.

"The best in me was given to its successful completion. When the day finally came, fate seemed to take a hand even then—a warning hand—that the creation of such an Iron-and-Motor creature was almost a violation of the laws of Nature. Man overstepped the bounds of propriety. The very first action which may be attributed to the Machine is the 'stroke' you suffered. True, it cured you, but not for any sentimental reasons as you are foolish enough to still believe. The Machine sought recognition; it saw an opportunity to indicate its efficiency; it proved to be an ideal opportunity to become the first step in a series toward Machine Supremacy, toward the ultimate ruination of Human ingenuity and of civilization!

"Then came Theresa—my Theresa." Martin looked at the girl through tear-dimmed eyes. "I loved her so! She promised to marry me and we planned and dreamed

of our future life together. Then the Machine entered the scene! Methodically and efficiently it slowly but surely undermined the love that I know Theresa held for me, replacing it with another kind of 'love'—cold, cruel, impassioned—a love crowded with hopes of a different kind, a worldly career, power, affluence and independence!

"And with the advent of the Machine, the same situation has come to exist the world over! Man must compete with powers of iron and steel, wheels, batteries and motors, to win even the thing with which Nature had endowed him—Woman! Careers! A life with the Machine or with a man she would love! A home or an office! A machine or a husband! Hundreds of thousands of persons are today seeking employment, their livelihood having been seized by Machine efficiency. Jobless, they wander the streets in search of something to do, something to aid them in providing bread for themselves and their families. The Machine has its place, but it has been placed upon the markets of the world too suddenly. Human nature is slow to act and slower to accept that which is new. This sudden invasion from within could not be combated. What employment the machines could not do, they aided girls in doing under the guise of that empty term, 'career'!

"And, today I am a man hated by my fellow men. I produced that monster, which promises to spell the doom of mankind. Even you, Professor, who worked with me in its perfection, have turned against me. Don't you understand? Arrested, I can get no fair trial. I am hated! The world will leap with a vengeance upon a chance to return to me the suffering I so unwittingly began! I wrecked the machines downstairs—I tried to wreck that iron brute," and he pointed to the Automaton in the room, "but I failed. I meant to smash every machine in existence, and I would have, with the aid of other machines. War appears on the horizon and I would have accomplished my purpose. But it's too late now—too late—too late—"

Martin slumped in a chair and wept aloud. Theresa walked to the window. The Professor remained seated without uttering a word. The Automaton stood motionless.

The clang of a bell; the whine of a siren; a knock on the door. The Machine was spinning its web!

CHAPTER V

TWENTY years had passed. Time had stolen the vivacity of the girl who was once the beautiful Theresa. Streaks of silver in her hair told of the passage of the years. The flame of youth and ambition no longer sparkled from her eyes. The indelible stamp of time had changed her sylph-like form. She was now prim, masculine and almost forbidding.

Theresa had become a figure in National affairs. Her keen, cold efficiency, in the performance of her duties as Secretary of the Treasury, won for her the rather appropriate, if not enviable sobriquet of "Queen Theresa." With the Automaton at her side throughout the years, her climb to the heights was a steady one. Every move had been planned and calculated, until now she had developed tendencies which were almost machine-like.

Although not a public idol, so to speak, her efficiency

could not be denied. Her financial manipulations were the marvel of the business world. Never was the country on so firm a financial standing. Exacting in her methods, even cruel in her efforts to gain a desired point, it must be said that she was the acme of efficiency and productivity.

But Theresa was not happy. There seemed to be a void, a gaping emptiness in her life. Since the death of her Uncle, Professor Holtz, ten years ago, she found herself alone—bitterly lonely. Her friends, her business and political associates, meant nothing in providing the sympathetic interest which she craved. Lonesome in a world of faces, she found solace only in her work. The Machine had made good its promise. She had risen to one of the highest posts obtainable. But still, with each passing day, the growing dissatisfaction with the result of her ideals weighed more heavily upon her. The dignity of her office restricted any display of emotion. She could not allow herself to find a friend in whom she could confide. The eyes of the world were continuously focused upon her, a woman in so high a public office. Only in the privacy of her own room could she think—think of the happiness which might have been hers. Of a home tucked away peacefully from the crowds, of a husband, of children. Just dreams of what might have been. Here, she could think—here she could cry—here she could curse the lure of the Machine!

MARTIN also found time to think. Declared insane twenty years ago, he was placed in an institution. A man of his ability and capacities could certainly have no criminal tendencies. The wanton destruction of the Machines was diagnosed in a court of law as the result of an over-taxed mentality. A cure might be effected in the State Hospital.

But here again, Martin found Machines. Machines to care for the patients, Machines to feed them, Machines which cleaned the building—even Machines which recorded and diagnosed mental conditions. He hated them—loathed the sight of them. They had ruined his life; he would end their existence! He swore it!

It was found impossible to allow Machines within his reach. He had completely wrecked with his bare hands several which had been ordered to wait upon him. One Machine, which he had attacked, almost killed him in its efforts to ward him off. But this served only to further incense the man against the Metal Monsters.

Eagerly he followed the rise of the girl he still loved. He was happy in her success. Jealously he guarded pictures appearing of her in the newspapers. Clipping them, he would secrete them out of the reach of the cleaning Machines. Martin noted how Theresa had aged. But then, so had he. The once handsome, ambitious Alan Martin, was now a prematurely aged man. His hair had turned almost entirely white, although he had not yet reached the half-century mark. Time had ironed creases into his face, and the pallor of the hospital confinement had marked him.

Often he would think of writing his former sweetheart, but he felt certain it was unlikely that she would even so much as remember him. How could she in her exalted position take cognizance of a man in an insane asylum, even if that man was almost her husband. Then, again, to mail a message unbeknown to the attendants was another almost insurmountable achievement.

(Continued on page 705)

The Rat Racket

By David H. Keller, M.D.

Author of "The Revolt of the Pedestrians," "Half-Mile Hill," etc., etc.

RICHARD MOYER, senior partner of the firm of Moyer & Perkins, read that letter over twice before he called in the man who had helped him make the importing of high grade groceries from England a most profitable business for over twenty years.

He simply handed the letter over to Paul Perkins without a word of explanation. The latter read it through and handed it back in equal silence, but the hand that held the letter trembled.

"Just another racket," exclaimed Moyer, finally.

"Looks like it. I suppose we were foolish to start in paying for protection. First our trucks were threatened; then the new building; after that our best customers were bombed, and we had to pay to protect them. Your son was kidnapped—and the police! They even went so far as to advise that we keep on paying—and now this last letter! We might as well close out the business. All our profits go toward supporting a gang of criminals who have muscled into every type of American industry."

"On the face of it the letter looks innocent enough," sighed Perkins, as he picked it up and gave it another reading. "Simply says that the rat menace is increasing, cites several business houses where the rodents have done a great deal of damage, and offers to give our warehouses complete protection for five thousand a week. You could show that letter to a hundred police officials and they would laugh at your fears. But I am not laughing. Because that letter was written on the same damaged typewriter that the other letters were written on and those gangsters have not failed to make any of their threats good."

"Suppose we pretend that they are honest, and answer their letter and send them a check for the first week's protection?"

"They will laugh at you and send back the check."

"They may, at that. Then we will give them the cash. In either case, it will give us time to think. I feel that they are only experimenting with us. They are after larger game than five thousand a week. We shall see and hear more of this rat business in a while. Write to them and tell them that we will pay the cash, and put the entire matter in the hands of the Chamber of Commerce. If it does not act soon, the entire city will be in the hands of the gangsters."

The complaint of Moyer & Perkins was only one of a dozen similar ones which reached the Chamber of Commerce that day. In a secluded room of the Manufac-

turers' Club a dozen wealthy men met day after day, hearing and weighing evidence against a hundred forms of racketeering which was rapidly becoming a terrible and powerful enemy to the varied industries of the Metropolis. Practically every business had been threatened and more than one captain of industry blustered openly, but paid his weekly tribute silently in order to protect his business, family, and home.

Up to this time the usual weapon had been the strong arm man and the bomb. While these were bad enough, they were at least understood. When it came to rats, it was different. Of course, everybody knew something about rats—that they were supposed to be numerous around the river fronts and warehouses—but on the other hand, rats were seldom seen in daylight, and there were many New Yorkers who never saw one.

Not one of the dozen men had been raised on a farm and none had served in the trenches during the World War. They did not understand rats, so, they hesitated, and finally simply advised the merchants who had received the rat letters to use their own judgment. As a result, some paid tribute and some did not. There is no evidence to show that those who paid were one hundred percent free from rats in their warehouses, but within a week there was ample proof that at least three wholesale groceries, and one laundry had been invaded overnight by rats in sufficient quantity to cause thousands of dollars' worth of damages. Moyer & Perkins heard the news and decided to pay another five thousand.

The Defense Committee of the Chamber of Commerce was called to an extra meeting at the El Dorado Hotel. The owner of the hotel was one of the Committee, a man who, so far, had taken a very inactive part in its transactions. He did not waste time in giving the reason for the special meeting.

"I was called on the telephone this morning," he explained. "The person at the other end wanted to protect my hotel from rats for the small compensation of twenty-five thousand dollars a week. He referred casually to the three warehouses and one laundry that had been wrecked last week. Right at the present time I have, on an average, twelve hundred guests a night. They are here to be entertained, not to be frightened by rats. But here is the point. If I yield, every other hotel in the city will be placed in a similar position. Three hundred thousand strangers are in the city every day. Suppose that ten hotels were overrun with rats in one week and the fact was circulated in the press? What would that cost the city?"

*I*N these days of gang wars and high-powered racketeering, one wonders always what the next racket is going to be like. With Dr. Keller's genius for hitting at the vital spot each time, he gives us now a brand new idea and an ingenious solution. We hope racketeers do not read this story, but it would benefit detectives, policemen and the public at large to peruse it. This story, like the others, is written in the distinctively Keller manner.

Illustrated by MOREY



And now they were literally pouring out from back of the picture. A cursing man pulled it to the floor and there was a large hole in the wall . . . and out of that hole the rats were pouring.

"Better pay it," growled one of the men. He happened to own a hotel. He knew how temperamental was the pleasure-seeking stranger. Singularly, that advice was the only brand given by the rest of the Committee. They seemed strangely unable to offer any remedy except to keep on paying and in every way possible bar unpleasant news from the papers.

Inside of the next month, fifty-five hotels were paying a weekly tax to the rat racketeers. One small hotel refused, and was at once deluged with an army of rats which drove out guests and employees, killed one old scrub woman and severely injured twenty of the cooks, waiters and porters who received the brunt of the rodent onslaught.

Moyer & Perkins were still paying the five thousand a week when, to their surprise, a visitor dropped into their office and casually suggested that they sell him their business.

"It used to be a good business," explained Moyer.

"It still is," interrupted Perkins. "What my partner means is this. We have our share of trade, but the overhead has become so heavy that we have not been able to make any money lately."

"That is what I understand," commented the stranger. "In fact, I was sent here by the Chamber of Commerce. They told me you had been paying money for rat protection. That is about the only reason I want to buy your business. Your business is supposed to be worth about two hundred thousand and your real estate as much more. Suppose I give you half a million and advise you to keep quiet about the sale?"

"You mean carry on the business under the old name?" asked Moyer, looking at the prospective buyer earnestly.

"Something like that."

The Englishman shook his head.

"Not and remain in this country! They kidnapped my son. No telling what they will do next, if the policies of the firm are changed. Anything that is done we shall be blamed for, no matter who really owns the business."

"Then, you and your partner take a vacation in Europe. You can afford it. All I am asking for is an exact account of your transactions with these racketeers, so I can have something to work on."

"May I ask what you want to do with the business?" interrogated the Junior Partner, Perkins.

"Certainly. I intend to use it as one of my experimental laboratories for the study of a mammal, known as the *Mus Norvegicus*, called, in common English, the brown rat. He is supposed to have originated from the *Mus Humiliatus* of Central Asia. Now will you gentlemen take the half million?"

"We will!" exclaimed Perkins. "Then may I ask your name?"

"Winifred Willowby."

"Not the one who is reputed to own more United States bonds than any other man in America?" gasped Richard Moyer.

"I won't admit that I do, but I am the man you are thinking about?"

"Then I simply cannot understand why you want to mix up in this rat business."

"Simple enough. I am a hundred per cent American. For five generations my people have been born and buried in this city. I own over two hundred million dollars worth of land here. When the dregs of Europe come over to my city and use the rats of Asia to bleed that city white, then I personally protest. I am going to start something. I am not sure what, but when I finish, this city will be practically rat empty and gangster free."

"A large programme, Mr. Willowby," whispered Perkins.

"But I am a large man. Now, suppose I write you gentlemen a check?"

Five minutes later the two partners were alone. Moyer looked at the check, then put it in his pocket, and his hat on his head.

"Suppose we get it cashed?" he said to Perkins. "You can do as you please with your half, but I am going to take my family and go back to England. That man Willowby is only half pint size, but his blue eyes look cold to me, and I bet he plays a stiff game of bridge. If he starts fighting those gangsters, I do not want to be caught on the battlefield."

"How about starting a business over in England?" asked Perkins.

"Not a bad idea. I came over here and together we made half a million selling English groceries to Americans. Perhaps we can make a million more selling American groceries to Englishmen."

Winifred Willowby not only bought the grocery business of Moyer & Perkins; he bought a laundry, a small hotel, an apartment house and a theatre. He kept all the old employees, put in a manager, instructed that the weekly tribute should be paid as usual, and then disappeared from New York City.

Ten days later, in Paradise Valley, in the broken country below the Poconos of Pennsylvania, he entertained several men, each an authority in his special line of art or science. They kept the appointment, not being at all sure what it was for, but unable to refuse the invitation which was accompanied in each case with a substantial check. They had all heard of Willowby, but none had ever even seen him. No doubt all were rather disappointed at his apparent lack of color and personality. They quickly changed their minds when he started to talk, for there was a man who, when he had something to say, was able to say it briefly and to the point.

"You men are all interested in rats," he began, "and so am I. You have worked with rats in one way or another for a good many years. Perhaps I ought to introduce you to each other. Mr. William Rastell has written the best biological study of rats in the English language. He has done for rats what Beebe did for the pheasant. Now the gentleman next to Mr. Rastell is Mr. Carol Crawford. I doubt if he ever actually saw or willingly handled a rat in all his life, but I am told he knows more about the folklore and traditions of the rat than any other living person. The third of my guests is Professor Wilson. He is the psychologist who has tried to breed different strains of rats, some of superior intelligence and others of the imbecile type. What I want you gentlemen to tell me is why these rats congregate at times in certain buildings of New York City, in such large numbers that they are a serious menace to property and even human life, and, then, as suddenly disappear as they appeared."

"Are they actually doing that?" asked Professor Wilson, who had suddenly become vitally interested in the conversation.

"Suppose they are?" queried Carol Crawford, answering the question for Willowby. "That is nothing more than they have done for centuries."

"Do you mean migratory movements?" asked the biologist, Rastell. "Rats have always migrated."

"I mean nothing of the kind," protested Crawford. "I mean their sudden appearance in a town or a building, their remaining there for a short time and then their

sudden disappearance. The folklore and fairy tales are full of that sort of thing."

"That is why I asked you to come to this conference. Mr. Crawford," explained Willowby. "There is something peculiar happening in New York at the present time, and it has to do with rats and their actions. In some way rats of New York seem to be under the control of a set of racketeers who are able to force them to enter any building they select. The rats come and go suddenly. It is all over in a little while, but when they are in the building, they do a lot of damage."

Mr. Crawford interrupted him.

"I doubt if you use the right word, when you say the rats were forced to enter the building. Perhaps you mean that the rats were by some means placed in such a psychic condition that they wanted to enter the building."

"That brings the matter into my field of research," insisted Professor Wilson. "I doubt the fact that they were forced, but if they wanted to, why that brings up all kinds of interesting questions."

"That is what I am after, gentlemen. I simply want to present the problem to you and have you solve it. I personally am satisfied with one thing. These rats are no different than the rats of five thousand years ago. They are just like the rats of classic Greece and imperial Rome. Suppose we have Mr. Crawford tell us how they acted then?"

The antiquarian fairly beamed as he started to ride his favorite hobby-horse.

"Of course, the story everyone thinks of is the one concerning the Piper of Hamelin. It was in the year 1284. The rats were thick, and the Piper agreed to lead them out of the town for a certain sum. He played a pipe, no doubt some kind of a flute, and the rats followed him. When the people refused to pay, he returned on the 26th of June, the feast day of Saints John and Paul, and again played on the pipe. This time the children, one hundred and thirty in number, followed him into a cave and were lost. The date is well documented. A number of historians believe that it actually occurred, and on the gate of the town is the statement,

*'CENTUM TER DENOS CUM MAGUS AB
URBE PUELLOS DUXERAT ANTE
ANNOS CCLXXII CONDITA PORTA
FUIT.**

"The same story is found, with variations, in all parts of the world. There is, for example, the story of the wicked Hatto, abbot of Fulda. He was visited by a swarm of rats who killed him. I can give you a dozen variations of that story, but in each of them the rats came and went, suddenly, as Mr. Willowby says they have been doing in New York."

"I should like to see a few examples of this mass movement of rats. I saw a lemming migration in Norway, but that was different," explained Rastell. "It seems to me that if we actually saw one of these nocturnal attacks, we might learn why they wanted to do it."

"He is deadly right," agreed Professor Wilson. "A few actual facts are worth a hundred theories."

"That is why I have asked you to help me," explained the richest man in New York. "I have prepared some experimental stations for your use. I can put you in a grocery warehouse and guarantee that inside of a week you will see more rats than you ever dreamed of. I

have a laundry and a small hotel. We can work out the details right now. All I am asking of you is to find out, when the rats come, *why they come* and, once we know that, we can do something to solve this problem."

"The game looks interesting," declared the Professor of rat psychology. "What I am interested in is why the rats do it. I am sure that it is because they want to do it, but are they forced to want to do it? It is a problem that will take a lot of research to solve, but Rastell and I can solve it. With all respects to our friend, Mr. Crawford, I think that he had better stay away and just keep on reading about his little pets. A few thousand vicious rats would be hard for him to deal with."

"I guess you are right," laughed Winifred Willowby, "Crawford and I will stay here and read about it while you two do the actual scientific work. By the way, Crawford, in that story of the Piper, what was given the credit for drawing the rats out of the town?"

"The tune that he played on the pipes!"

"Check and double check. Now I would advise you gentlemen to locate some musical instrument in that warehouse, and if you find one, experiment with it. Of course, you will have to be rather clever to find it. In the first place, the people putting it there will have it under cover and just as soon as the mischief is done they will remove it."

"It is nothing like that," laughed Professor Wilson, almost in scorn. "These are New York rats. It will take more than a little music to lead them from their usual haunts. But Rastell and I will start in at once. Give us the address of the buildings and the authority to use them. How shall we know when the rats are going to come?"

"They will appear within seven days after you stop the racket money. Suppose we adjourn the meeting? I want a few words in private with Mr. Crawford. You other gentlemen can get all the rest of the details from my secretary. He will arrange your salary and expense account. Good night."

He took Mr. Crawford into his bedroom.

"Do you really believe that story, Crawford?"

"I positively do. And the people believe it. The Piper walked down the Bungen-Strasse and to this day no music is ever played in that street. They even date time in that town from the day the children disappeared."

"Then, there must be something in it. Suppose we go over to Europe and find out something about that tune, the tune that drew the rats out of Hamelin?"

RASTELL and Wilson followed out their programme. They went to the grocery warehouse and made a rat survey. There were a few rodents there but not many. Then they issued orders that the weekly payment of five thousand dollars be stopped. After that they spent their nights in the warehouse. On the fifth night the rats came by the thousands. They appeared to be hunting for something, but in the meantime, they ate and soiled whatever came in their way. The local cats fought heroically, but were soon killed and eaten. The rats came up from the cellar through the elevator shafts, up the steps, through the cracks in the floor, up and up till they started to run around the roof. Then, at four in the morning, they started to leave, running down the steps in close formation, seemingly panic stricken at

*When the magician (the Piper) had led the one hundred and thirty children out of the city, two hundred and twenty-two years before the gate was built.

their own temerity and anxious only to return to their safe, dark haunts. The two scientists, in their wire observation cage, closed their note book, opened the door of the cage, and started to make a careful search of the building. It revealed nothing but the bones of cats and much spoiled food.

For the next two days they worked carefully through every part of the building, hunting for something to explain the conduct of the rats. They found nothing. All that they were sure of was the fact that the rats had been there, and that they had not come back.

The following week they repeated the experiment in the laundry. The course of events was the same. The payment was refused, then the rats came, devoured and destroyed, stayed a night and left. Nothing was found. They decided to go and have a conference with Winifred Willowby, but he could not be located. The two scientists were left to their own resources. Having no other plausible plan of action, they selected the small hotel for their next experiment. This time they set a hundred wire traps and caught several hundred living rats. These they subjected to every known experiment, and at the end were forced to acknowledge that all they had learned left them in ignorance as to why the rats came just for one night in such enormous numbers.

Two months later their employer sent for them. It appeared that he had just returned from Europe. He listened to their story, smiled kindly at their perplexity, suggested that they take a vacation and forget about rats for a while, paid all their bills, and discharged them. He even went so far as to say that he was uninterested in rats, that it had just been a passing hobby and that just at present he was working on other matters. So, he asked them to pass out of his life. But he and Carol Crawford went into the wilds of Pike County and did some experimenting on his own account.

Meantime, things were going from bad to worse in New York City. The rat racketeers were becoming bolder, and started to reach after larger game. There were rumors that the Pennsylvania Railroad was paying to protect its terminal and that the Interurban was being bled white to keep the rats out of the subway. Of course, much of this was rumor and none of it reached the newspapers, but there is no doubt about the fact that eight million people were becoming rat-conscious and rat-afraid. It was growing into a worth-while racket, and those behind it were rapidly acquiring more than riches; they were growing so powerful that they felt able to control the city government.

More than one business tried to resist and more than one business awoke to find that it owned nothing but ruins. Rat protection was worthless when the enemy came by the hundred thousand and even million. The only worth while defense against the multitudinous enemy was the payment of the weekly tribute, small enough each week, but in the course of the year taking the profits from most of the firms compelled to pay. Within a year the average business in the city was working for the gangsters and content to, at least, be permitted to stay in business.

Then the racket was transferred to other cities, slowly and on a small scale at first; then more boldly. Chicago, Philadelphia and Washington began to feel the pressure. The profits were divided, but always the main share went to New York. For that was where the Big Boys were. And ruling the Big Boys was the Old Man, who was

so little known and so seldom seen that his very existence was questioned by some of the smaller gangsters. No one knew how he had obtained his power, but no one was brave enough to deny it. The fact remained that he simply ruled; reigned like a Caesar; dictated like a Napoleon. From back-stage he pulled the wires to make his puppets dance.

It was this man who aroused the interest of Winifred Willowby. In other times, in former generations, in far-passed centuries, they might have ruled Rome together, or split it in two ways over their dying bodies. But in 1935 the short sword had been replaced by the ballot box and civil war by the primary election. Neither man had much that the other craved for, yet both prevented the other from the full enjoyment of life. But it was the blue blooded patrician who at last gave in and secretly asked for an interview.

The conference was held on a fallen log on the shore of Porter's Pond in Pike County, Pa. Someone said that if Mark Hopkins sat on one end of a log and a student on the other end, it was a University; but, with Willowby on one end of the log and the Old Man on the other, it became nothing more than a conspiracy against the existence and the very life of the nation.

It was a strange sight, those two opposites on the log. The rich man, a little over five feet, barely a hundred pounds, with the body of a boy and the face of an angel. At the other end a large man, with the torso of an ape, and the face of a Titan, a man who had conquered by crushing, ruthlessly and devastatingly, all who had dared to oppose him. The two were great men, but they were equally lonely. Their very positions as leaders of their respective societies prevented any fraternizing with their followers.

"I do not want to waste your time, Mr. Consuelo," began Willowby. "We ought to be able to understand each other. You would do nicely if the Federal Government would leave you alone, but it has the peculiar ability of annoying you and interfering with your plans. Am I right?"

"Absolutely! Of course, it does not make any real difference—"

"But it does annoy you—investigations of your income tax and deporting your men now and then?"

"Well, what of it?"

"Simply this. After some years of effort, I am at last able to say that I control the Government."

"That is the silly brag of a child," sneered the Old Man.

"Not at all," and as he said that, Willowby reached down and picked up a handful of pebbles. "See these stones? In the same way I hold in my hand a majority of the Supreme Court, over two-thirds of the Senators and most of the Representatives. I can swing the votes of enough of the states to pass any kind of legislation I wish. Now here is my proposition. You handle the cities. I will turn over the country to you. Together we will run the nation, and all I want is just one thing—just one little favor from you."

"I bet I can guess what that is," laughed the Old Man.

"No doubt, but let me tell you. I want to be the next President."

"I thought so."

"I think we ought to be together on this thing. Perhaps I could be elected without your help, even in spite of your opposition. But if I am, I will, naturally, try

to destroy you. We might end up like the Kilkenny cats. But if we are allies, I have eight years of power and you have eight years of liberty in which to plunder the richest nation in the world. How about it?"

The Old Man drew a deep breath.

"Is this on the level?"

"It has to be. I have a reputation, and it is respectable. I am placing myself in your hands. What is there to prevent you from giving the press an interview tomorrow?"

"You would deny it!"

"But no one would listen to me."

"I suppose not. What do you want me to do?"

"I want you to give the order to your leaders. There are one hundred of them, perhaps a few more. No doubt my list is not absolutely accurate. Call them in, from Chicago, St. Louis, New Orleans, Boston and Philadelphia. Have them all in one room. You introduce me. Let me talk to them. I will open the war chest, fifty million to start with, and more to come. You promise them anything you want, and I will make the promise good."

"And you will be there? Right in the room with me?"

"I will be there."

"I won't do it!" growled the Old Man. "I never have and I never will. I don't do things that way. A whisper to one or two, and the business is done, but not a hundred at one time. Some of these boys have never seen me."

"Then you want to turn me down?"

"Not exactly, but I am opposed to that meeting."

"Then we are through talking. I will take you to the five-ten train, or, if you want to, I will have my chauffeur drive you to the city."

"Let's talk this over."

"No."

"How about having six of the Big Boys there?"

"No! All on my list or none."

"Your list?"

"Certainly! I am not sure that it is absolutely correct, but it satisfies me."

"Let me see it."

"No reason why you should not."

The Old Man took the paper that was handed to him. It was no casual glance, he gave the names. At last he handed it back to the little man with the casual comment.

"I suppose that is not all you know about my organization?"

"I suppose not. Why not be sensible about this, Mr. Consuelo? If we fight, we will simply kill each other, but if we become allies, who can stop us? But I must be sure of you, and the only way I can be sure is to have you talk to your men, and then let me talk to them. We can have the meeting at night in my offices, you know where, top floor of the Empire Trust. No one need be any the wiser. Half an hour, and all the men can go back with the money in their pockets and the orders in their brains."

"O. K. When shall we meet?"

"A month from today at ten P. M."

"Good. I'll give the orders, but I want the money, the fifty million. It is not much, but part of it will help keep the Big Boys in line. Some of them won't like the idea very much."

"A little cash will influence them. Now, how about taking you back to the city?"

WINIFRED WILLOWBY made preparations for entertaining his one hundred guests. His largest office was transformed into an assembly room. Its inch-thick carpets, overstuffed chairs and mahogany trimmings gave it an air of luxuriant comfort. There were special chairs for the Big Boys and two very special chairs for the Old Man and the Host of the evening. A large picture frame, hanging on one wall, and carefully covered, gave a hint as to part of the evening's ceremony.

The Empire Trust belonged to Willowby. He had built it so that he could have a private office on the top floor, the sixty-third from the ground. The elevator reached this floor, but there were no steps. Many buildings surpassed it in height, but none in the view that it gave of the city. The guests who arrived first commented on the view and expanded their chests when they realized that they carried that city in their vest pockets.

At last every chair was occupied. It was a peculiar gathering. It included judges, politicians, pseudo-business men, several lawyers and even the Mayor of one of the largest cities in the Mississippi Valley. Facing them, sat the Old Man and Willowby.

Of the hundred men in the audience not one was at his ease. Most had come because they were afraid to stay away. Many hoped that they would not be recognized. The majority doubted the wisdom of such a meeting and felt that the Old Man was slipping mentally. It was the first time that many of them had even seen him. He was almost as much of an unknown to them as the little man sitting next to him. A peculiar silence hung over the assembly. More than one man fondled the handle of his automatic. No one seemed to be sure of what was going to happen next. It was a fortunate thing that the meeting was held at night; with the audience composed of such men. A daylight gathering would have been impossible.

The Old Man and Willowby held a short, whispered conference, and then the leader of American Racketeers stood up. What had been silence before, now became the hush of death. The Old Man was going to talk, and everyone wanted to hear what he had to say. It did not take him long to start.

"You Big Boys have been running the cities before," he growled, "but from tonight on we are going to run the country. Congress and the Supreme Court are going to dance to our music and like it. Our new friend here has promised to deliver the goods, and he does not want much in return. I have told him that we will trade, and what I say goes. Now, you boys listen to Willowby, and remember that I am back of him."

Then he sat down. As far as the records are concerned, that was the longest speech the Old Man made in his life. The Boys hardly knew what to do; they felt they should applaud, but not being certain remained quiet. Then Willowby stood up.

"I do not want very much, gentlemen," he remarked. "I only want to be the next President of the United States, and I can be, with your help. Let me show you a picture."

He walked over to the covered picture, pulled a cord and unveiled it and there, life size, were the Old Man and Willowby shaking hands. Anyone could tell who they were and what they were doing. That brought the house down. Everybody felt that it was time for a little noise. Some of them, who knew the Big Boy well

enough, went up and congratulated him on the new political alliance. In the confusion, Winifred Willowby slipped out of the room and no one noticed his absence.

But some one did notice the sideboard and started to sample the bottles. Soon everyone was drinking a little. But the Old Man did not drink. He just sat there, moodily chewing his cigar and wondering how much of the fifty million he could keep for his share.

Nobody saw the first rat. It dropped from behind the picture and ran under a chair. The next rat did the same. Perhaps fifty rats were in the room before their presence was noticed. By that time they were coming faster, by the dozen, by the hundred. That was different. One rat in a large room meant nothing. A hundred, five hundred in the same room could mean almost anything.

And now they were literally pouring out from back of the picture. A cursing man pulled it to the floor and there was a large hole in the wall, two feet in diameter, and out of that hole the rats were pouring, big brown, hungry rats, dropping to the floor and starting to hunt for food. The puzzled men jumped up on top the chairs; the rats stood on their hind legs and looked at the large chunks of food with black beady, binoculars. The Old Man just sat there, chewing his cigar and cursing. He knew what it all meant seconds before anyone else.

A number of the most fearful men made a dash for the elevator. They were driven back by a torrent of rats climbing up the elevator shaft. Then *fear came—and panic*. With gun and heel, and broken chairs for clubs, they started in to kill rats, and for every one they killed, a hundred fastened to them with chisel teeth. To make it worse, the lights went out, and they were there in the dark, with mutilation as a beginning and death as an ending, and still the rats poured into the room, up the elevator shaft and out of the hole in the wall.

The Old Man walked across the room, kicking the struggling bodies of his followers out of his pathway. Rats ran up his legs and tried to bite his hands, his face; he swept them off him as a tiger would wipe ants off his fur; at last he came to the window. There was the city of New York in front of him, the city of a million twinkling lights, the tomb of a billion dead hopes; the Morgue of a Nation, covered by laughing, painted faces. He raised the sash and sat on the sill.

"Damn Willowby!" he said. "What a fool I was. But I am going to die clean. No rat is going to send me to Hell!"

And then he dropped.

In the room the struggle kept on—for an hour and then two. At last the screaming ceased, and the only sound was the gnawing of the rats, the crunching of their teeth and their satisfied, little squeaks of pleasure.

The next morning Winifred Willowby called on the Chief of the Secret Service of New York. With him were several men from Washington.

"I want to tell you something," he said. "A large group of men borrowed my office to have a meeting last night. They wanted privacy and secrecy and they had heard of my place in the Empire Trust Building. So I loaned them the entire floor for the night. But my janitors tell me that something terrible happened. An army of rats invaded the place, as they have been doing with other places in the city, and literally ate every man there; that is, all except one, a fellow by the name of Consuelo,

and he preferred to jump out of a window and die clean on the pavement."

"Consuelo?" asked the Chief. "Not the Old Man? Not *that* Consuelo?"

"I think that is the one. Here is a list of the men who were there. I thought you might like to look it over before you gave it to the papers."

The Chief took the list and read it, puzzled.

"Do you mean these men were there last night?"

"I understand so."

"And now they are dead?"

"I think so. Of course, that is for the coroner to say."

"Do you know who these men were?"

"I suppose they were business associates of Consuelo. At least, that is what he told me."

"They were the hundred biggest gangsters in America. They were the brains of everything vicious in American society. There is not a man there whom we have not been after for years, but we just couldn't pin anything on them. Their death in one night gives the decent people in our country a new lease on life. We can go ahead now and get the little fellows. But, tell me, Mr. Willowby, how did it happen?"

"I told you. They had a meeting and the rats came. You know there was a rat racket which no one thoroughly understood. Anyway, the rats came—and killed them. No one can tell exactly what did happen, because everyone who was there was killed. That is all. I am sorry that it happened in my office—but I thought I was doing the man a favor to loan him the place for the meeting."

THAT night Crawford and Willowby were talking things over. In rushed Rastell and Wilson, brushing the indignant butler aside.

"We have heard a thousand rumors," began Rastell, "and read as many foolish statements in the papers about the rat tragedy, and we just couldn't wait a minute longer. You just have to tell us what happened. We are not going to leave you till you do."

"You tell them, Crawford," whispered Willowby. "Whenever I talk about it, my voice becomes squeaky."

"It happened this way," explained Crawford. "After you started to work, Mr. Willowby decided to go over and study the story of the Piper right in the town of Hamelin. We went there and there was no doubt that the town people believed that it really happened. They told us all about it, and the more we listened and paid them, the more they told. They gave us the very tune the Piper played to make the rats follow him. It was a simple little thing, and we made some phonograph records of it. It seems that when rats hear that tune, they want to get as close as they can to the source of the music. Then one old man—he gave us some additional bars which he claimed drove the rats frantic for blood, and we made a record of that also.

"Afterwards we came back to America and went up into Pike County. Not so many rats there but enough to experiment with. We tried the short tune and the long tune and they worked on the American rats just like they did on the Hamelin ones. We put two and two together and decided that the rat racketeers in New York were using this method of attracting rats. Just put a repeating phonograph in a building and start it playing, and then the rats would come and eat everything to pieces.

Of course, we did not know the psychology of it, but I suppose it has something to do with the effect of musical vibrations on the emotional part of a rat's nervous system.

"Then Mr. Willowby thought that it would be a good idea to make a great rat trap and attract all the rats in the city to it. He had a good deal of work done in the Empire Trust, and rigged up a phonograph with a lot of loud speakers in different parts of the basement. He ran a lot of ropes down a ventilating shaft for the rats to climb up on. I think it was his original idea to have them come up to his office by the millions and then

use some kind of gas on them. At least, he wanted to get rid of the rats. Then, last night after the meeting started, or maybe before, someone must have turned on the phonograph with the entire record. Mr. Willowby left the room, went down the elevator and being somewhat absent minded, told the elevator boy that he could go for the night. Of course, he was surprised to hear all about it the next morning. All he wanted to do was to get rid of the rats."

"Exactly!" purred Mr. Winifred Willowby. "All I wanted to do was to rid the country of those rats."

And he lit another cigarette.

THE END

Automaton

By Abner J. Gelula

(Continued from page 697)

Martin had dropped from the public eye. The world had listened eagerly to the details of the trial; newspapers commented in divers ways as to the result. And then something else took the center of the stage, and interest in the creator of the Machine dropped as suddenly as it began. But now, an opportunity presented itself.

An enterprising feature editor of a metropolitan newspaper conceived the idea of pulling some good "copy." He planned to recall to the public mind the Alan Martin case, telling of how he had been confined to the asylum, his present attitude, and the various other morbid details. A reporter was allowed to visit him.

Martin glanced up from a book he was reading.

"Good morning, Mr. Martin," the newspaperman ventured. "I'm from the 'Sunday Mercury.' Do you mind if I speak with you a while?"

Martin put the book down and looked at the face before him. "What can I do for you?" he finally questioned. He listened as the reporter explained the desire to re-awaken interest in him and felt that "it would result beneficially for you."

Martin smiled. He ran his fingers through his hair. "There is nothing you can do for me, young man," he replied. "I have no desire to re-awaken memories which are better left in a dormant state. No, please tell your Editor that I have nothing to say and that I would appreciate it if he would forget my story."

The reporter appeared disappointed. It might have been a great story. Bidding the older man good day, he turned to leave. Martin, however, had been thinking. If he was to act, this was his chance!

"Just a moment," he called, "Please sit down." Martin buried his head in his hands as if deep in thought. "Do you really want a good story?" The reporter, anticipating something unusual, readily assured him that he did.

"If you can keep a confidence for a while, you will get the best story of your life." The assurances were freely given.

"Visit Theresa Holtz, Secretary of the Treasury, and tell her you saw me. Tell her I asked for her. She will remember."

The reporter, unfamiliar with previous events, looked at the man quizzically.

Martin noticed the expression on the man's face. "No I'm not crazy—not that crazy. Believe me that I'm not sending you on a fool's errand. After all, isn't it certainly worth the chance—worth speaking to Miss Holtz

about—regardless of how remote the possibility of a story as you see it? That remote possibility is worth the minor gamble on your part, is it not?"

The reporter assured Martin that he would get in touch with the paper's Washington correspondent and have him notify "Queen Theresa" that he asked for her.

It was but two days later that the "Mercury's" Washington correspondent was ushered into the austere presence of Theresa Holtz, Secretary of the Treasury.

She was busy signing papers as the man entered the richly furnished office. The brightly burnished metal of the Automaton, which always attracted the attention of the visitor, made no impression on the reporter who had called upon Theresa often in the course of his duties. Without looking up, she announced her readiness to hear him, with a curt: "Yes?"

"This may seem a bit peculiar and out of the general run of governmental affairs, but, if I may ask, do you know a certain Alan Martin?"

The woman blanched as she looked up. The pen she held in her hand dropped to the desk. Then suddenly realizing her emotions were speaking almost as clearly as words, she regained her dignified composure and replied, "Why, yes, I know of him. Why do you ask?"

"A 'Mercury' reporter visited the man several days ago in the State Hospital and he asked for you, said maybe you would remember him, begged that you be told that he knew you—that—"

Without a moment's warning, the Automaton, standing nearby, took two steps forward, raised its appendage and with a resounding thud struck the man on the head. Without a sound he crumpled and fell from the chair.

"It was necessary to stop him. He was rekindling the emotions with you which, at this time, would spell disaster from a political standpoint. I will see that he mysteriously disappears. The sacrifice of a life is nothing compared to the future before you."

Theresa arose from her desk. She was thinking. "Wait here. I will return shortly," she ordered the Machine. With difficulty she maintained an outward semblance of her dignified self. Upon leaving the Treasury Building, however, she immediately repaired to police headquarters.

She was recognized immediately upon her entrance. "My Automaton has killed a man. I want it put out of existence. Speed is necessary or it will become suspi-

(Continued on page 760)

Luvium

By A. R. Mckenzie

AS treasure hunters have dug deep beneath the surface of the earth in unfrequented lands for supposed hidden riches, so adventurers of the future may dig deep into the earth to look for hidden wonders of an entirely different nature. But very likely at least one of our many explorers will accidentally find himself amid strange life in subterranean worlds before others will make such search their objective. There is life in the sea—probably in the deepest parts of the sea—why not below the surface of the earth? Our young author believes there is, and he tells us what kind of life, to his way of thinking, might be found there.

Illustrated by MOREY

“AND so somewhere beneath that vast Sea of Sand lies the only way back to buried Luvium and the Lost Cities. I must find the shaft, but I cannot, unless—. For God’s sake, will you back me?”

The cold, grey light of a new day was stealing in through the partly closed curtains as my friend, Jack Wright, wound up his bewildering tale. All night long he had poured out his unbelievable story to end up in a passionate entreaty for my financial support: That I gave without any hesitation. Would you have? Had you but heard from his own lips the apparently impossible account of Ancient Luvium and its undreamed of civilization, I think you would.

Jack Wright’s Story

I AM not mad! I swear it. My mind is as stable as yours, yet long before I am through I am positive you will look upon me as a raving lunatic. Often during these long weeks have I wished I were, but it cannot be. Memory persists in spite of all. I pray you to listen to my unforgettable tale of Ancient Luvium, and, as you listen, try to believe.

IT was shortly after the War when I joined M. E. Carr’s expedition of scientific exploration. My chief duty was to record the details of the research work. Our objective was that section of the Sahara known as the Libyan Desert, a vast wasteland absolutely devoid of life in any form, wherein we were to locate unknown cities which were thought, by Carr, to lie far beneath the shifting sands.

I will not weary you with our many months of preparation, nor will I dwell long upon the endless journeys we made into that Hell of shimmering sand. My story is of Luvium and the city; its life and the strange but authentic circumstances that surrounded our visit to these unheard of peoples.

Our? I use it incorrectly. Poor Carr never as much as glimpsed this surprising country. I include him because I do not desire to rob this exacting scientist of that unquestionable honor. Only through him was it possible for me to tunnel to this inhabited cavity and meet the one person—but I anticipate my story. Enough to say that upon the very threshold of unlimited discoveries, that would have amply repaid his life of ceaseless search, the unlucky man of science met his end.

Company One of our consort had straggled in one morning to snatch a few hours of much needed rest. Carr, himself, led this little band of exhausted workers. He had little to say, for, as usual, their efforts had been without success. I was preparing to make this entry in the books, when a fagged camel plodded into our midst, bearing an excited native, who brought word from Camp Three that was most encouraging. This party had unearthed a clue and requested Carr to hurry out at the earliest possible moment. That he did within the hour, with most of the main camp at his heels.

There we found Benson, head of the lucky group. Through the milling and grunting of the camels, he exultantly shouted his discovery.

Shortly before quitting work for the night, a perspiring native had uncovered a brick. They had stayed over another day in order to dig deeper the following night and as a result had found more bricks. Halting only



*Then I slammed the lever over and
we shot forward, followed by the
cries of the men behind us. . . .*

long enough to send the word to Carr, they kept at it, throwing back the heavy sand until the outlines of a peculiar three-walled building were revealed.

We had reached our goal! Those crumbling walls, unromantic in themselves, told us all that we wished to know. Built by man, they must have housed man. Where a human being has lived there must be a city. History tells us that. Somewhere beneath the sand at our feet might lie all that remained of a once mighty civilization, possibly far in advance of our own.

No time was lost in collecting our five camps. There would be no moving of this merged group. Our work was before us, and it would mean work! Night after night our small army hurled back the sand, revealing new discoveries at each turn of the shovel.

These discoveries were startling, but my story does not deal with this dead city or even with the city beneath it. We went further!

Honeycombing the area under the first city, or Zandu, as it was called, were endless passages that even the sand had failed to reach. Then, on one of our many tours of exploration, we stumbled upon a large chamber wherein was the mouth of a tube leading to the second buried city (Thista), which was much the same as the first. Inhabited ages before Zandu, it had been found and explored by the Zanduians, much as we had penetrated to their magnificent metropolis. The Thistaians, too, boasted of an insatiable curiosity as to what lay beneath them, only their tunnels ended in blank walls. That is, all but one!

This tube ceased its downward push just as the others had, but here nature took a hand in the proceedings. Directly opposite the final rung of the iron ladder that led to the second city was a seam opened by some forgotten quake. The aperture offered more than ample room for the passage of a man, and here it was that Carr and I found ourselves after our many trips through the great city of Thista.

"Well, my boy, we've seen some of the many wonders of man and we ought to be satisfied," the scientist chuckled, "but I have an uncontrollable desire to see what nature has prepared for us. How about you?"

"I'm with you," I replied, "but I can't see how the old lady can show us anything that will surpass these wonders above us." How little I knew of that which lay before me.

After switching our high-powered flash and pocketing our weaker beacons, we set out on the trail. For hours we followed the irregular passage as it pursued its restless course. Huge caverns and bottomless pits were discovered until at length we came to an abrupt end and faced a blank wall.

Although we knew this would happen, we were disappointed. But Carr was a true scientist. Immediately he began to tap the walls. To ascertain—what? What could lie beyond those walls of stone except more caves?

One wall gave forth a hollow sound that spoke of space beyond. I was uninterested. Strange and beautiful as the caves were, I had no desire to go further. I was tired and hungry.

Carr, however, attacked the wall with his small bar as though life itself depended upon it. Stretched full length upon the floor, I watched him, my mind debating upon the sanity of certain men of science.

And then his bar crashed through the thin partition. Simultaneously with his cry of amazement, I sprang to

my feet. I had been tired but that was forgotten. Together we threw ourselves against that yielding wall like madmen, for the opening disclosed a dim patch of light that rapidly grew in size as our bars tore into the stone.

I doubt whether steel itself could have resisted our frantic efforts for long. In a short time the crack was of sufficient width to permit us to squirm through. We set foot on a pass, that at the first glimpse cried out the presence of man. The light that had filtered through to us came from a round glass container attached to the opposite wall a bit to our left. Within lay a small piece of metal-like substance that produced the light.

"Radium," was Carr's startled ejaculation.

During all this time we had used, off and on, compact oxygen suppliers, for naturally this gas would be at a premium at levels not connected with the outside atmosphere. In Zandu we had no need for them, nor in Thista, for the most parts. We had rigged up a system of ventilation by use of powerful fans that drove out the dangerous gases and sucked in the surface air. However, in the caves, it was necessary to don the oxygen masks. Here, inspired by the signs of man, we dared to remove the apparatus. We were rewarded by refreshing draughts of pure air that were a Godsend after the sultry breezes of the desert. Carr never knew how it was possible.

The passage ended on our left, but to the right it continued until a sharp turn cut off our view. Three round lights appeared in our range, alternating two on the left and one on the right of the tunnel, spaced about twenty feet apart.

Carr turned to me with wonder written in every line of his bronzed face. "We certainly have found something this time," he exclaimed. Around that corner must lie even more. Come!"

I needed no second invitation. The turn revealed another avenue interlined with adjoining passages all dotted with that unflickering radium light. A fortune lay within easy reach. We hurried on.

Ahead of us appeared an opening a bit larger and more brilliantly lighted than the passageway through which we were hastening. As we drew nearer, it seemed to be a main artery running through the maze of tunnels. Without a thought of what might lie beyond, we swung into the channel, intending to trace it to its source. Had we but taken the time to reconnoiter, that which followed might have been less disastrous.

As it was, we rounded the curve and ran full tilt into a party of six or seven heavily armed men hurrying down the pass towards us. With a shout of warning, the foremost warrior leveled his rather delicate rifle upon us. Without a sound Carr slipped to the floor. There had been no ear-splitting crash to indicate that a shell had been fired, yet, an instant after the gun had been aimed, my partner stretched his length upon the stone. I was utterly dumbfounded. What manner of men were these and what power did they employ to produce this silent death? For it was death.

I whirled from the body and faced the coming squad. One of their number had apparently struck the weapon from the hands of the first and judging by his threatening gestures, was voicing his disapproval of the hasty action. The tongue was unlike any I had ever heard. Shrill cries and deep gutturals intermingled with sounds not unlike notes of a song, comprised much of his speech.

Now that I recall, this would have been my opportunity to make my escape. But no thought of flight entered my head. I stood transfixed, staring at these strange men, who could not and should not be. It was impossible, yet the lifeless body of Carr beside me confirmed the verity of their presence.

Men such as these I had never seen, nor was their apparel in any way familiar to me. All were upwards of six feet tall with practically perfect features. Smooth, unknotted muscles rolled beneath their white skin with an ease that spoke of enormous strength.

Hanging from the waist to the knees was a skirt-like garment of some strange metal. Covering the upper part of the body was a sleeveless shirt of the same material, studded with brilliant stones set in some unknown design. All but one were of the same pattern. A helmet-like headdress, adorned with still more flashing gems, was topped with delicate metal ornaments. Strange, pointed sandals, strapped to their feet, completed the outfit. Each had a two-edged sword belted to his waist and carried an implement that at the first glance I took to be a short barreled rifle.

The second warrior, the one who boasted of a more intricate, jeweled design and who had struck the weapon from his fellow's hands, ceased his bombardment of words and turned to me. He directed a sing-song volley in my direction. I shook my head; his efforts were as meaningless to me as the songs of the birds. As he made no attempt to bring into play his fatal weapon, I was encouraged to try my luck at speech.

It failed! English, French, German and a smattering of native jargon brought only a puzzled sign of negation.

Evidently sensing that any further efforts at conversation would be futile, the man turned and alternately growled and sang a few commands to his warriors. Four immediately hurried by me and disappeared up the pass from which we had come. Two placed themselves at my side. A gesture that could not be mistaken indicated that I was to go with them. The silent but effective instrument grasped in their ready hands commanded my profound respect.

The second warrior, without a doubt the leader of this little squad, set off in the direction from which they had but a moment before come racing to meet us. I followed with my attentive guard. All that remained of Carr, a scientist unequalled, lay in the passage awaiting the pleasure of my captors.

What I was bound for and what new, undreamed of experiences lay before me, I had no way of knowing.

DURING our brief march up this well-lighted passage and others, no attempt was made to confuse me. Consequently I was able to mentally picture each turn and pass that we used. Perhaps some day I might be able to retrace my steps and return to the upper world.

As it was, we had passed three turns and through as many runways, when a fourth curve brought us into a spacious chamber. In the center of the room and suspended from the low-hanging ceiling were some ten or twelve chair-like objects. They resembled not a little an overstuffed parlor seat equipped with foot and head rests. Built into the right arm was a dial complete with a movable pointer. Strange characters were inscribed around the edge, much as the numbers on the face of a

clock. Protruding from the left arm was a small lever so constructed as to be thrust forward and sideward into either of the three notches cut in the metal base.

A more thorough examination disclosed the fact that the chairs were fastened, not to the ceiling, but to one of two overhead rails. This was done by means of a rather short network of re-enforced steel rods that led to a puzzling diamond shaped box, completing the connection.

Even as I studied this strange contrivance, a train of four similar structures slipped in from an adjoining passage, coasting silently along on the second overhead track. This then was their ingenious method of transportation—clever adaptation of the monorail principle.

Each seat held a bejeweled warrior, who leaped from the chair the instant the conveyance touched the landing place. They sang excited questions and exclamations at my guides and each in turn examined—what to them must have been—my outlandish garb. Having gathered the gist of the story, they hurried off down a corridor, singing in a confusing discord.

My guides at once coupled four of the cabs together and signed me to take the second seat. The leader settled himself in the foremost compartment. I watched him closely as he set the pointer and thrust the lever into the first notch. Without the slightest tremor we glided out into the corridor from which the rails were suspended. Ignoring the second notch, our motorman swung the lever into the third. Instantly we shot forward with a breath-taking momentum that steadily increased. It was impossible to estimate our terrific rate of speed.

Although we had but fairly started when the car began to lose speed, I knew that a tremendous distance had been covered. Fortunately the stop was accomplished with no sudden jerk or I could not have kept my place. I learned later that the chairs, or Taumbs as they are called, of the city were equipped with safety straps to prevent such an accident. These carriers of ours were but private cars to the mines and could not compare with the luxurious city Taumbs. Only in principle were they comparable.

Our stop was made in a chamber similar to that which we had left, only far more elaborate. Here were several landing stages, each with its own outlet. The problem of returning cars was solved by making the rail a continuous track that circled within its limits and returned along the side of the incoming support. Each city or private line adhered to this plan.

The transit lines of the metropolis were laid in tunnels far beneath the narrow streets. Here, as I found later, were three rails indicating the three speeds of the lever. The first track carried the Taumbs, just setting out from a station or landing. The moving of the handle into second speed automatically switched the flyer over to the middle track, where the rider was at liberty to travel along at a moderate pace, or by means of the lever, take advantage of the increased speed of the third rail. To stop, the action is reversed. The dial set upon the desired station controls all the mechanism. Numerous safety devices added from time to time reduce the danger of accidents to a minimum. This and more I learned in the days that followed. Many of the wonderful inventions and the unheard of developments of the Luviumians I shall be forced to touch upon but lightly; others I shall omit entirely as they have no bearing on my tale.

Our arrival created quite a stir among the throng milling about the platforms. They rushed upon me, chattering excitedly. Evidently I was a rare curiosity. Again and again my captors were forced to repeat the story of my capture. However, the inquisitive mob was much more interested in my khaki outfit than in my personal self. Every thread was traced and the crude patch on my knee was gravely inspected. Cloth in this land was apparently at a premium.

For the first time I noticed that, of all the people grouped about me, not one boasted a single garment of material resembling cloth as I knew it. All were clothed in some strange, metal-like fabric.

One huge, muscular giant, who had gained the front rank by the simple means of grasping those in front of him and unceremoniously hurling them to either side, took great pleasure in sinking his sinewy fingers into the tender spots of my arms. At each grimace I made, he burst into loud peals of laughter. When I sought to discourage his advances, by firmly pushing him away, his grin vanished and his features twisted into a ugly snarl. He stood for a moment with his six-foot-four frame towering threateningly over me before he charged. Head down and arms outspread, he bore down on me, bellowing with rage.

I simply doubled him up with a smash to the pit of the stomach, following with a jab to the face. He dropped to the floor without a sound. The opening had been perfect for a man in any way nimble with his fists.

A deep silence fell over the astonished group as their eyes flashed to the fallen warrior and back to me. Only for an instant, however, for their song soon broke forth in still greater discord than before. But no one attempted to take up the giant's cause.

He was roughly yanked to his feet and half dragged and half carried away, but the look he shot me was so full of hate and fury that it boded ill for me in the future. I sincerely hoped that I had seen the last of him. Had I but dreamed of the scurvy part he was to play in my life, I would have settled scores with him then.

But I did not know. As we pushed through the crowd, I could not help smiling at the readiness with which a lane was opened for my passing. Was it fear or respect? I thought the latter, for it was hard to connect the former emotion with those perfectly proportioned bodies and the fighting faces of true warriors.

We passed from this hall to a still larger chamber housing the finer cars of the City Taumbs. Here was the landing stage for the carriers connecting with the three tracked lines under the city proper.

Seating ourselves in the same order as on our previous ride, and fastening the safety belt of finely woven metals, we waited our turn. The starting point is the only place where one is held up for any length of time. Once out on the rails, progress is never halted. Collisions are impossible, due to the fact that a car cannot attain a speed greater than that of the one preceding it. There is no throttle arrangement, the power and speed being obtained directly from the rail upon which one is traveling. The rate of speed of the three tracks is unequal; each track is faster than its predecessor. The car in switching, obtains the velocity of the approaching track before it swings over. Automatic devices prevent the meeting of two cars at a switch. The momentum of one is slightly checked the instant such a situation occurs and the chair at once regains its normal speed.

Naturally I knew nothing of this at the time. In fact my only thought was concerned with my fate at the hands of these people. I had failed to note any open hostility, save the brief encounter at the terminal. I classed the man as an exception often found among all races. He was a blustering, threatening individual, fond of exploiting his power over a less impressive fellow man. All the rest had expressed merely a natural curiosity as to my presence. That I could not understand their questions was to them a sense of amazement.

The leader tried, by signs, to convey his thoughts, but failed miserably. All that I could gather was the fact that I was to be taken away from this place.

Out on the second track we switched over and gathered speed. A much longer ride ensued at a fairly sickening pace. Somewhere ahead a car rocketed into our lane directly in front of us. Knowing nothing of the automatic controls, I closed my eyes and waited for the crash that did not come. For the remainder of the journey we sped along behind this careening chair.

Our shift from third to second was accomplished without a sound. However, I thanked the maker of the supporting harness as I felt my body thrown forward on the straps. Over to first with another noticeable check of speed, a sickening drop through an oblique passage and our second ride was over. An attentive guard unfastened my safety belt and I stepped out, a bit shaky, but ready for my next venture.

Falling in behind the second warrior, we filed into an adjacent room, much smaller than that containing the embarking platform. It was fairly well crowded, and as it had but one entrance, I was debating the significance of such a move, when the entire structure, men included, suddenly shot skyward. Caught off guard, I sprawled flat on my face, which brought forth roars of laughter from the entire group.

Swearing softly, I struggled to my feet. I had been floored by an elevator! This elevator could easily have accommodated a hundred men and its speed was unthinkable. Only by standing with my feet well apart, could I remain in an upright position.

An instant of flight and the hoist slid to a noiseless stop—the halt not comparable with the start; still it was abrupt enough to bring on that feeling of extreme lightness of the stomach.

Fully half the crowd left at this stage of the journey, but we remained within. Others entered, however. I was prepared for the next upward jerk and managed to keep my feet when it came, but not without difficulty. It was my turn to laugh at the expectant onlookers and I did. My head captor smiled back and it suddenly struck me that his was a pleasing personality. Perhaps I was not in bad hands after all. Many around me had likable faces and few, if any, showed visible signs of cruelty. Unfortunately, none of the first were in command.

We disembarked at the second landing in a corridor that was like none that I had ever seen. Well lighted but without any noticeable glare, it fairly cried out its splendor. Faultless marble of many different hues, perfectly blended, made up the walls and arched ceiling. Everywhere were hundreds of sparkling stones set into the wall in complicated designs. The radium lights were housed in containers of the most astonishing construction. Designed and constructed along most elaborate lines, they were placed in artistic groups and threw their rays from all angles with equal intensity.

The floor itself was worthy of distinct mention. It was movable and laid in seven sections. We had stepped out on the non-moving or stationary stretch of flooring that adjoined the walls. Each succeeding portion of the floor was geared a bit faster than the one nearer the wall. The center section contained row after row of upholstered benches that slipped by fairly rapidly. From our position, we stepped from section to section, until we reached the seats. Once there, one could venture either way from the center and reach the stationary floor at the sides of the corridor.

After an easy ride, we left the seats and entered an opening at the right. From that moment began the most confusing bit of our travel, that I have ever witnessed. I gathered that I was to be given an audience before a person, or group of persons, of the greatest importance. I was only mildly interested, for of more concern to me were the many strange and bewildering contrivances that made up this peculiar city. More than that, I wished to see the city itself.

But that was not to be for some little time. Hour after hour we were forced to wait in some anteroom that merely led to another anteroom, which meant more waiting. Guards were everywhere and personages fairly weighted down with priceless jewels were hurrying to and fro. The very air seemed laden with gigantic problems that must be settled on the moment.

I watched one group deep in the throes of some disturbing complexity. Solemn, careworn faces were these, and I wondered if the fate of the nation lay on their shoulders. I learned later that the position of a certain object, apparently used as a desk, was out of line. A passing servant or slave solved the difficulty by moving it a foot to the right. The group disbanded and the world was saved.

I smiled. It was ever thus. How seriously the people of the world, whether on the surface or below, regard themselves. I was about to delve further into the futility of such viewpoints, when the door slid open and we were motioned inward.

THE door, itself, was peculiar. It was made up of two sections, a top and a bottom. These slid into nicely fitted grooves in the ceiling and floor respectively. Beyond the opening was a short passage running to the left at the end of which stood another closed panel.

A purple light suddenly flashed on and off somewhere above us. My watchful guard had dwindled to one at this stage of the proceedings. With one court attendant, we stood there until the signal flickered again.

It was obviously a sign of readiness, for the courtier at once placed us in a position with our backs to the entrance singing as he did this, a beautiful selection. I felt the door slip back gently.

The three of us then backed slowly into the room until the door was cleared. Immediately it slid back into place without a sound. It was composed of several parts, all fitting perfectly in a circular formation.

My guides at once flung themselves flat on their faces and commenced a backward crawl. I remained erect, a haughty smile of disdain spreading over my face. For no man would I place myself in such a ridiculous position. Others thought otherwise. A score of hands fell upon me, flinging me painfully to the floor. Angered at this treatment, I sought to regain my feet, but was thor-

oughly discouraged by keepers of court etiquette. A dozen heavy fists left me content to remain in my prostrate position.

A hush fell over the room as I ceased my rebellious efforts. Evidently I was under a searching examination.

A thin, scratchy voice broke the silence and I was lifted to a sitting posture. Another command brought me about to face the author of the grating voice.

Still seated on the floor, I directed my eyes to the one who demanded such humiliating subjection. I expected to see a marvelous creature, perfect in every way, fit to lead this outstanding race. . . . Instead there sat before me a puny man, hoary with age. His leathery face was marked many times with the hideous stamp of time. Only in his eyes did he show any redeeming feature of one in command. Hard and cruel as they were, one could sense the power that lay behind them. They spoke of ages of experience, of absolute rule, backed by a brain fully capable of handling any situation that might arise.

The man, himself, did not impress me as much as did his position. He reclined in a massive chair actually suspended in mid-air. I searched in vain for the supporting structure or wire that must hold the throne in place. There was nothing; yet it rested there without a sign of movement.

A series of small push buttons were built into the left arm of the seat. On the right was an instrument faintly resembling a small radio horn. I learned later that it was an order machine that issued signed statements to any part of the building or city. All that was necessary was to speak the thought and the dispatch was delivered.

Between the monarch's perch and our party was a huge horseshoe-shaped table closed at our end. Some thirty or forty richly trapped men of rank were seated around this imposing desk. Obviously it was a cabinet of some kind, but I doubted their executive power with this overbearing creature in command. Stationed about the room was a score of attendants and guards.

The enthroned man was speaking and apparently at me. I shook my head. The fellow literally went mad! He screamed and growled in the most outrageous manner. Proffered explanations were ignored. He pressed a button at his left and the entire support shot forward over the table to halt a few paces from me. There, with his face livid with rage, he directed his song of hate full into my face. He had worked himself into that state where I looked to see him froth at the mouth, when the man seated at the table's end on the left rose to his feet. He spoke in a voice that was full and clear and altogether extremely pleasant.

The suspended man swung his chair around facing the speaker. Only for a moment did he listen before he cut him short. He screamed and howled at the giant who seemingly had questioned his words. Cruel and harsh were his reprimands for the man at the table paled slightly. But he made no excuses. As he stood there with his shoulders back and head erect taking the unfair rebukes as he did, he aroused my deepest admiration.

Tiring of this, the enraged chief whirled his seat back to the original position and barked an order to a ready page. A door shot open and a huge warrior backed into the chamber. After completing the disgust-

ing ceremony, he turned around. My eyes went wide as I recognized the fellow. He, whom I had bested at the terminal, stood before me. Before speaking he cast a crooked smile in my direction. Scarce a dozen words had fallen from his lips, when my guide gave a gasp of surprise. The theme of the recital was no doubt based upon me, but evidently something was amiss according to the actions of the man at my side. He shifted about uneasily and from time to time muttered under his breath until the oration was at an end.

He was the next to be called upon, but from the first it was apparent that his words carried little weight with the Tribune. Suspicious glances, that had at first been bent only on me, now shifted to take in the two of us. He was in a bad hole and he knew it, but a fighting man seldom has an agile tongue. As he faltered along, his statements were repeatedly questioned, until he was forced to resume his place beside me.

Our case was rapidly coming to a close. The aged ruler rose from his suspended throne and pronounced the verdict. Severe indeed it must have been to cause the man at my side to sink to the floor in a crushed heap. Many were the stern nods of commendation but not from all. One there was who voiced his disapproval: the huge fellow who had dared to cross his master but a short time before. Springing to his feet he sang his controversy in no uncertain terms. The effect on the astonished dwarf was far from pleasant.

He gave vent to his fury by racing his chair up and down the room. So great was his agitation that he actually shook as he poured forth his words in wild confusion. Unmoved by this outburst, the rash noble fought back word for word. This fiery discourse was brief, but it appeared to bring about a change of sentence. Whether it was better or worse, I had no way of telling. Still growling angrily the King brought the audience to a close by flashing from the room. Still seated in his chair he shot through a sliding panel high up on the wall. The support remained in suspension as long as it was in sight.

Under guard I was led from the court, back to the moving corridor and the Taumb's Station. My third jump was brief. Within a very short time I found myself in another palace-like edifice in the presence of the noble who had defied his Emperor. His uncontrollable curiosity was hardly appeased by my failure to comprehend his numerous queries.

I must thank this very natural quality for my knowledge of the Luvium language. Laedi, my defender, was determined to learn my history. I was equally anxious to know how I stood with these underground people. With the help of Vuotd, my appointed tutor, we progressed rapidly.

Strange is the tongue of Luvium. I marvel that I grasped as much as I did.

The base of the Luvium speech is laid on fourteen letters or sounds. Seven of the sounds corresponding to our vowel tones, two consonants not unlike M and Z of the English language are added, are given in—I can call it nothing else but—song. Each vowel as it goes up the scale has a different meaning at each pitch. Thus "A" sung in the tone of C is entirely different from "A" given in the D pitch. It is possible in this way to form parts and often complete words simply by changing the pitch of one or more vowels. I use the term vowel solely because there is no other medium to convey my thought.

They are vowel-like only in sound; their use is vastly more complicated.

The sounds that I will call consonants remotely resemble our letters of B, D, G, K, L, T, and V. These are not given as notes of the scale but are spoken in any pitch below the lowest vowel tone that the speaker so desires. Their use is not as varied as the musical seven; often a complete sentence or series of sentences can be given by means of vowels alone.

The written language is built up out of the spoken tongue. Fourteen strange characters are used to designate the fourteen letters of their alphabet. The symbols or letters are inscribed upon lined paper divided into sections of eight lines running across the sheet. The letter is placed between the space that represents the desired pitch of the vowel. A line runs from it to the next character, which is most likely located in a different space. Often the same figure follows but in a higher or lower note. Thus a word might appear in this manner:



The musical score of the outer world might be favorably compared to it, only the Luviumians do not place any character on a line; all are set in spaces.

All consonants as they are used are placed directly below the bottom line of the score. The end of a connecting line denotes the end of a word. A sheet of this peculiar writing is read from the bottom up, commencing at the lower left hand corner and running to the right. Instead of beginning the contents back on the left, the thought continues directly above. Each line is alternated in this manner until the top of the sheet is reached. A new page, regardless of the preceding order, always starts at the left, as do titles and headings.

One can easily understand the difficulties connected with such a language. A person without a musical sense would be practically speechless. Although I was able to hold up this end of it, it merely provided a background for the complications that followed.

I was free from the drudgery of instruction at the end of the first Zuae, the Luvium equivalent to our two months, but I had a great deal to learn even then.

Votta did much towards the furthering of my knowledge.

I HAD met Votta at Aov, second meal of the work period. I had scarcely seated myself when the girl entered. Perfect as are all women of this lost race, she seemed to me infinitely superior to any of her sex. Possibly I am prejudiced. I only know my heart did queer things the moment she entered.

After she had taken the place opposite Laedi, her father, the meal commenced. Although I have passed through this process many times, I can never quite overcome my feeling of wonder at the simplicity of it all. The diner is seated at an oval table, upon which appears nothing but a row of push buttons at his left. Pressing a button sets into motion an intricate device that de-

livers a portion of the desired food up through the table. Square metal dishes are the standard type of containers. These are in place beneath the surface of the table and are snapped through a trap at the proper signal. Only one implement is used in carrying the food to the mouth; a curved metal utensil at one end of which is a spoon-like instrument and at the other a two-pronged fork. All foods not in liquid state are sliced into uniform morsels easily handled with the fork. Food in a condensed form was once the accepted edible but it proved unsatisfactory and was ordered out. Teeth and certain digestive glands were put out of use and threatened to become rudimentary as time went on. This they did not desire. First in the minds of the Luviumians is the welfare of their bodies. For that reason have they reached such physical perfection.

At the completion of the meal the dishes are snapped back under the table to be prepared for the next eating period. Food is delivered by tube on order direct from the manufacturing plant. The necessary ingredients are taken from the earth and converted into food by a process that to them is simple and natural. Indeed, Laedi was bewildered and not a little skeptical when I told him about our methods of obtaining sustenance.

After rising from the table, we adjourned to a room that was evidently a reception chamber of some sort. Not a single piece of furniture was in sight. I learned that if one desired to rest, he had but to press a convenient button arrangement and a luxurious couch would spring up out of the floor—most amusing, but very practical also. When not in use, they were out of the way.

Amusement was in order. Built into the wall was a glass covered compartment about three feet square. The manipulating of a dial set into the arm of a vanishing chair caused lifelike figures to appear behind the glass and entertain. Musical numbers on strange instruments and several short bits that were possibly plays made up the program. I was fascinated. No doubt an advanced form of television was employed to produce this effect. The actors were not seen as flat shadows on a screen but as living people. Even natural colors were apparent.

Because as yet I was in ignorance of the spoken word, this type of entertainment soon lost its appeal.

The entrance of Vuotd interrupted my musings. It was the signal for the beginning of my first lesson in Luvium speech.

As the days slipped by, I grew more and more proficient in the language of Luvium. There came a time when I could actually carry on a short conversation, falteringly and gropingly to be sure. It was then that I began to question my host in regard to the many wonders of his country. Mainly I desired to know of the origin of this buried race. This was one of my first queries put to Laedi. He responded as best he could.

"I know little of that," he told me. "Save through the age-old legends handed down from our Fathers," he told me. "Records, such as there might be, have been lost, due to the countless controversies that have arisen in the past. Often have we reverted to the primitive state. No less than four times has the city of Luvium, itself, been destroyed. It is whispered that eons ago this city was situated, as you say your cities are, on top of the Voilt (earth) that holds us prisoners. A huge ball of fire moving in space furnished light. All was space but the Voilt beneath.

"Many are there who scoff at this story for, reason

they, what could prevent the people or the entire city from floating out into this void and colliding with the gigantic ball of fire? It is thought that the magnetic force that holds us in an upright position now, could not be of sufficient strength to continue to act in this capacity at the surface.

"Also there is the theory that a huge transparent covering of great thickness protected the city from the intense cold that held the earth in its grip. We base this belief upon that substance that to this day extends dome-shaped over our homes. Others think otherwise, producing equally confusing hypotheses, till one knows not what to believe.

"The Oduba theory continues to declare that there came a time when the earth became convulsed with terrifying tremors that threw countless tons of ice and earth over us until we became as we now are. Light and heat were supplied by means of the breaking down of Bamdb (radium), discovered and perfected by our ancestors. The life-sustaining element which we breathe had been manufactured long before the catastrophe made its appearance, for it was needed under the protective covering. Life continued much as before the Voilt surrounded us. That is the belief."

"But," I demanded, "how is it that you have never attempted to find your way back to the outer world?"

"And why should we?" he asked in turn. "Life here is all that we desire. Then, too, if the theory is true, what advantage would it be for us to return to where lies only ice and unthinkable cold? Here we are content and here we shall remain."

He asked me questions. My answers were often most confusing to him. He did not understand much of what I said, but he did not ridicule my statements. Crude, he thought, were most of our mechanical works, often pointing out similar Luvium devices, which I had to confess were far superior to our own.

Electricity was developed in such a manner that it seemed unbelievable to me. Perfect understanding of this great force and its unlimited possibilities was theirs. Its use was a thousand times more variable than that of our meager world. In comparison with the Luviumians, we have but scratched the surface of electrical appliances.

Great as is its power, radium is vastly more efficient. The scarcity of this metal prevents it from permanently replacing electricity. Only in lighting is it used to any great extent. The Taumbs, the corridors, and countless other Luvium inventions receive their energy from the magnetic wonder.

Naturally the inclination to understand all that had passed within the royal chambers the day I was taken captive, surpassed even my craving for Luvium history. If I were to suffer some horrible death, I wished to know it. The actions of the enraged Dedul, ruler of the city, had been far from pleasing. It was Laedi who told me, touching but lightly on his courageous stand.

"Baku," he said, "our Dedul, upon the testimony of Zemd, his favorite, sentenced you to one Zuac at hard labor in the mines. This means the actual handling of the radium ore, which causes slow death at the first touch. Zemd, the warrior whom you humbled at the station, swore that you had conversed with your captors. That in itself aroused suspicion and added weight to his further remarks. He was positive that you were a spy from Luva, with which we are at war."

"And what might Luva be?" I asked.

"Had I the slightest notion that you were not what you seem, that remark in itself would suffice to allay my suspicion. Know you that in this world are four other cities differing but little from ours. Not as long as memory lasts have all five been at peace with one another. Always has war been waging and always will it continue. A race at peace soon over-populates its immovable boundaries. War is more desirable. Thus—"

"And what could I accomplish if I were a spy?" I interrupted him, bringing him back to the question.

Laedi attempted a rather lengthy explanation: "Within the limits of our dominion are endless passageways built to make possible the mining of the metals upon which our lives depend. In these burrows are fought, for the most part, our many battles. It is possible to tunnel from a near-by city to these avenues. Seldom do the tremors of such work fail to register upon our delicate detectorscopes, but even they are not infallible. It is our greatest danger.

"You were not as fortunate. Your break into the mines of Zemd was instantly detected, causing your speedy capture by our alert sentinals. I regret exceedingly the death of your companion, but it could not be avoided. Often the fate of the city rests upon the rapidity with which a detachment is thrown into action. It was thought at the time, that you were but an advance guard of an attacking party.

"I now think otherwise, but not so Baku. It was for this reason he sought to destroy you."

"But your actions; why did you do as you did?"

"It was because in you I saw something the others did not. Possibly there is a race such as you describe. I do not understand, but I believe.

"I merely questioned the Dedul's logic in not studying you more closely. Long have I been a thorn in Baku's side. He would greatly relish an opportunity to do away with me but that he dare not do, for I am next in line for the throne. Great is my favor with the people, while his is rapidly diminishing. His actions are being questioned more openly each succeeding day. I am convinced that my ascent to the throne would be looked upon with rejoicing by the masses but that cannot be as yet. First must he die.

"My intervention brought about the usual outburst. But because of my position he can do little but rebuke me as he has done continually in the past. Even his words he must choose carefully. Thus it was that he withdrew the sentence and placed you in my care. Possibly he believed that you would seek to harm Luvium in some way while you were my prisoner. I would be responsible. Then indeed would he have an excuse to do that which he has long wished to do. Fortunately you have chosen to remain passive.

"At the end of the third Zuae you are to again appear before him and your fate will then be determined. I can do little for you should he rule against you. In the end, his word is law."

My next hearing was still a good half Zuae, or month, away and as I was free to come and go as I pleased, I spent a good part of the time exploring the city. Often was I in the company of Votta.

Since the time she had sat beside me at my first meal she was always in my mind. I knew little of love nor did I dare allow myself to think of any such possibility. Who was I to speak of such matters before this

proud beauty of lost Luvium? I was happy with her companionship throughout most of my stay. It was my fear of losing her entirely that stilled my heart, for not even in my wildest dreams did I dream that Votta would return my love. No, I reasoned it were better to continue as we were, than risk losing her entirely.

It was upon Laedi's suggestion that I donned the simple costume worn by the inhabitants. In this way I would appear less conspicuous as I went about in public. Worked into the metal of my trappings was the bejeweled crest of the House of Laedi. This I took as a great honor, and rightly so. For was I not a prisoner under his care? If he had wished to do so, he could have thrown me into the pits to await in chains the coming of the fourth Zuae and my second hearing. He was responsible for my keeping and would remain so until the Dedul relieved him of this duty. I was not even under guard, though I doubt if I could have escaped, even had I tried. All the mines were under private control, and in order to gain access to them, one must be either a laborer or he must carry the owners' permit. Once within the mines of Zemd, I was positive I could find my way to the break which the unlucky scientist and I had made. But Zemd was the noble who had invented the damning testimony, that laid me open to suspicion! I could hope for little mercy from him.

So it was that I set aside for the present any plan of escape and devoted myself to an intense study of my surroundings. Strange and indescribable are the many peculiar contrivances in Luvium. They had surpassed the outer world in nearly everything. And it was not surprising. Their civilization was centuries old at the time the outer man first shed his tail and dropped from the trees. Even had I proof, many things that I might make known to you would be received much as are figments of an unbalanced mind. You would not understand. It is to avoid ridicule that I tell you only of the Luvium wonders necessary in the furthering of my account.

The city is unique in itself. It is laid out in diamond-shaped blocks; the majestic buildings are fashioned much like those of the ancient Romans. Much has been added, however, in the way of elaborate cornices, jeweled towers, and fantastic dome-shaped roofs—all tending to produce a city extraordinary. Its height cannot be estimated, for much of the structure is far below the rock upon which the city rests. Adventurous turrets shooting skyward tend to break the monotony of uniform height.

Everywhere are cleverly concealed radium containers placed to bathe the fairy-like city in a soft warm glow. Few, however, do more than accentuate the ominous gloom that hangs just over the highest of the pointed towers. I often wondered if there actually was an artificial covering for this lost race somewhere up in that threatening darkness. If so how had it withstood the enormous pressure it had been subjected to during the countless ages? Might it not crack some day under the strain and bury Luvium under the tons of rock that bore down upon it? Questions such as these I was forced to answer as best I could in my own mind. The Luvumians accepted their situation, and, outside of a few vague attempts at analyzing their surroundings, were content. Greatest of all problems confronting their

men of science was that of wresting an existence from the rock in which they lived.

This they had done for ages but were continually searching for newer and better methods, forcing each element to do more than it had in the past. Always there was the fear that some day the earth would fail their groping tunnels and with this in mind they looked after the conservation of their material. In this way they had build up their wonderful food producers and the perfect atmosphere plants that were in use. Hardly a chip fell from the powerful drills that was not utilized in some way.

It was while in quest of the life-giving elements that they discovered and perfected many of their most amazing inventions. These I learned to use and enjoy during the brief month before Baku summoned me to court once more.

It was the thought of that appearance that dimmed somewhat my appreciation for the new marvels. The day came all too soon and with it came the expected notice. Laedi, Votta, and I had just seated ourselves before the entertainer after the third meal when the order machine at my host's side flashed its message. It was simply a reminder that the Dedul sat on the morrow to pass sentence on the prisoner of Laedi. There was little need for it. In the days past I had often speculated as to my fate. Although it had not been a subject of conversation, I felt that Laedi and Votta were as much concerned about it as I was. Perhaps more so. They knew their King better than I did. The fact that I had won favor with the former had not passed unnoticed; and it did not please the Dedul.

Perhaps it was best that I knew nothing of the fears that gripped the two, or I might not have passed my last night as calmly as I did. Many were the daring escapes I planned to elude my captors but I soon discarded all. It would be impossible to fight my way alone through the well-guarded mines of Zemd to the entrance to the caves.

After a time I dropped into a troubled sleep during the course of which I pictured myself enduring many terrible deaths. The one that persisted in spite of myself was the illusion in which I was strapped before an instrument that slowly, with untold agonies, dissolved my body inch by inch until my eyes alone were left. Before these appeared the figure of Baku, strangely resembling a living skeleton, advancing with a white-hot iron to remove these organs. Helpless in that awful state known only in dreams, I would watch him approach. Then as the glowing iron moved forward to blind me, I would awake with a scream, shaking with terror.

I found myself after one such hallucination, sitting straight up in bed staring before me with unseeing eyes. Gradually, as I began to dimly perceive the objects of the room, I made out the form of Laedi standing at my side. He had come to take me to my doom, for I had slept through the awaking song that calls all Luvium to another day. Upon his face was not the slightest sign of the doubts and fears that I now realize must have been racing through his mind. Nor did he express the slightest emotion, as we sped under the city to the waiting court room, choosing to speak only of trivial matters.

My entrance was much as the first had been. All was as before, except that my captor was not at my side. I wondered how he had fared at the hands of his

Emperor. Had he been disposed of, or had he, too, been released on parole until such a time as this? I did not know for no one had told me.

Baku, himself, hung threateningly before me in his strange chair. This feat of apparently defying gravity, I had learned, was accomplished simply by means of a complicated set of powerful magnets, combined with a confusing display of radium activity. I say I learned, but as in the case of many other marvels of this land, I did not understand.

It was enough that he was there looking for all the world like the grinning skeleton of my dreams, ready to deal with me as only he could.

As before, my case was heard, including the lying words of the mine owner, Zemd. Only his story had been improved upon with the passing of time, until it was nearly perfect. This time I was given an opportunity to plead my case personally. So it was in the face of overwhelming odds that I rose and addressed the cadaverous Monarch.

"Ruler of Luvium," I began, "I speak to you in your own tongue, which I was unable to do during my first hearing. Only through Laedi's teaching has this been made possible.

"I am not of Luva, nor had I ever heard of such a city, until I had learned enough of the language. I am of another world as unlike yours as the sun is unlike the earth. Upon the surface of the Voilt that surrounds you lie cities and countries of which you do not dream. Many are they in number placed in all parts of the globe. Here I have lived——"

"Stop!" screamed the repulsive creature now on his feet, "Cease this idle babbling! Think you that you can confuse the Great Baku, mightiest of rulers of Luvium, with meaningless words and lying statements? Fool! Liar! Only the most ignorant, weak-minded of peoples would dare bring such blasphemy before the highest of men. Cities above the Voilt? Impossible! Know you that life such as you picture cannot exist? Countless ages ago our scientists proved this once accepted belief to be groundless. That some of us still persist in the lie in the face of undeniable fact is proof that insanity," and he shot an accusing glance at Laedi, "still exists in our perfect race.

"This must be wiped out for the good of all Luvium. First," he turned to me, "you will go; then others!" There could be no mistake as to his meaning.

"To the interests," he continued, "of science I give this man. The cause of dementia must be found. The Dedul decrees thus."

But he counted not on Laedi. Out of his chair in an instant the loyal noble, white with fury, sang a most fitting answer to the thinly veiled accusations.

"Baku," he cried. "Long have we called you Dedul, the mighty, and as many times, have we cursed the fate that placed you on the throne. A child could have ruled as well. Many are the hideous blunders that have had their origin in that spectacular chair of yours; not the least outrageous being this attitude towards Adu, the stranger. You look for insanity. You need not look far for there in——"

But he got no further. The Dedul whirled about and faced the man who dared utter such treason.

"Enough," he shrieked. "Too long have I been lenient with you, Laedi. Today, you have passed all bounds. You forget I am Dedul."

"The King forgets—" began Laedi, but he went unheard.

Once again Baku roared his commands.

"Return the rash noble to his chambers under guard. He will remain there until I wish to judge him.

"Conduct the stranger to First Confinement where he will await the pleasure of the men of science. That is all!"

It was enough. Disarmed, but with head erect, Laedi strode from the room at the head of his guard. I was taken through the moving corridors to a dimly lighted cell far beneath the palace. The door slid shut and I was left alone in the narrow chamber.

My thoughts ran wild. What devilish torture was in store for me? It would be something worthy of the crafty beast who had dared the wrath of the people by censuring their favorite. To the men of science! What could it mean? Perhaps—but what was that. From the shadows at my back came the faintest of sounds. Pivoting about I beheld an unadorned warrior charging viciously upon me. In his upraised hand he clutched a slender steel bar.

WITH the quickness of thought I flung myself against the wall. The weapon whistled harmlessly by my head and crashed against the door. As he turned to renew the attack, the fellow sought my face and at the instant his eyes went wide.

"The captive," he muttered and lowered the rod. With a cry I sprang forward. There before me stood the man who had taken me prisoner in Zem'd's Mines.

"What do you here?" I cried, and at my words he stepped back.

"Are you not he whom I took before Baku, these many Zuaes past?" he asked.

"The same," I replied.

"Then how do you speak in the tongue which you seemed not to know at that time?"

I explained as briefly as I could and then repeated my question.

"That," said he, "is easily told. On that unlucky day the Dedul ruled that I be turned over to the medical men. Since that hour I have lived in this cell awaiting their call."

"But who are these dreaded men by whose hands we are fated to die?" I asked.

"It is but one of Baku's frightful schemes," he replied. "Ravaging the poorer section of Luvium is a disease that has been thought incurable. The Dedul desires to conquer it, as he has all other things, so he presents laboratory material to his Doctors in the form of living men. Those who have displeased him are injected with the sickness and as they suffer, its many stages are carefully studied. When the patient dies, the next is brought on. I am next and then you follow. Pray that I live long, as I have prayed for those that have passed before me."

So that was it! And I was helpless!

Inch by inch I went over my cramped quarters just as Latvu, my cell mate did. Ceiling, walls and floor were all of steel as was the sliding door. The only opening was the barred ventilator a half foot square. It was from here that Latvu had wrested his crude weapon with which he had nearly brained me.

For an instant I wished he had. But then an age-old urge to live surged up within me. I racked my brain

for some plan to escape. My presence served to revive slightly my hopeless companion and together we plotted and planned for hours at a time.

We were interrupted by the sliding back of a panel of the door through which a tray of steaming foods was inserted. Our provider lingered a moment to inquire about our health; a jest that to him was uproariously funny but carried little humor for us. After he had retired, we busied ourselves with the meager fare. A few squares of solid material and a container of red liquid, comprised our feast. It was the sipping of the colored fluid that brought me to my feet with a cry of delight. Latvu, certain that I had gone mad, gripped his improvised weapon firmly and listened as I outlined the crazy scheme that had entered my head. Slowly his hand relaxed and he, too, jumped to the floor as I finished.

"Impossible," he cried. "Yet we can accomplish nothing by venturing nothing. Come, we will make ready."

The carrying out of my project was impossible without the presence of our jailor. Hours dragged by with terrible slowness as we waited his coming. We had almost given up hope when the man made his appearance with the tray of food. Immediately we went into action.

No sooner had the fellow deposited his burden when there fell upon his ears horrible cries and wails from within the cell. Cautiously, he peered through the panel to gaze upon one of the prisoners breathing his last. Upon his upturned breast was a slowly widening splotch of red that told only too well that dreadful story. Near the door, sunk in a broken heap, was the second prisoner uttering cries of terror.

The man hesitated whether or not to carry the report back through the long passages to the main guard, or enter and investigate. He decided on the latter for there seemed but little danger. Was he not armed?

Accordingly, sword in hand, he shot back the door and stepped into the room to examine the lifeless hulk. Latvu suddenly ceased his lamentations and leaped to his feet. The steel bar swung down and caught the hapless man square, crushing his skull like an eggshell.

I rose to a sitting position and grinned. Our drink had served us well, but for what purpose? Could we hope to win our way out of the palace? And if we did, what then? Once out in the massive city we might elude capture, for some time, but in the end they would find us. That, we both agreed, was better than lying helpless in this cage.

I donned the trappings of the fallen warrior, pulling the headdress well down over my face. With any luck at all I might pass as a follower of the House of Baku. Latvu's case was different; until he found a way to change harnesses, he would be instantly spotted.

But we must risk this. Thus it was that a king's serving man and an unarmed companion stepped out into the corridor bound for the nearest Taumb's Station. Latvu was well acquainted with the pits of the Dedul, having served his first ten Zuaes as a fighting man under the King. His knowledge enabled us to hug the little-used passages as we hurried on.

We had almost reached the room wherein lay the Taumbs, when a shout came from our rear. Turning, we discovered three warriors rapidly overhauling us. Capture seemed certain. Directly ahead lay the motor-chairs and the attendants. With my confederate weap-

unless, we could not hope to overcome the Taumb's Guard nor could we battle our way back to the questionable safety of the pits. It was useless to run, so we stood our ground. I faced the foremost Luvium with a forced grin that belied my sinking heart.

"Whence go you," he called showing less agitation than I had expected. "And what means this man here?"

"I do but take the prisoner from Confinement One to Confinement—Ah—Four." I faltered, "Upon the Dedul's order," I added hastily.

"I am sorry," he exclaimed, "to have troubled you. I had hoped you were bound for the quarters of Luu, head of the Twelfth Guard. We have lost our way, being but new men from the House of Dvat serving for the first time under Baku. However, we are certain that it is not far away. Perhaps you can direct us."

"That I can," I lied. "Take the first pass on the right as you turn back and follow it to the second main arterial. Turn left here and it will lead you to Luu's quarters."

A brief thanks and they were gone. We breathed once more.

Latvu chuckled. "Now all we must do is to convince the Taumb's watchers that we have a right to leave the Palace, produce our passes from thin air and we are free."

"And that we cannot do standing here," I reminded him. "More inquisitive parties might question us as to the exact location of Confinement Four. That you must admit would baffle us."

"Come then," said he. "Better to die in a fair fight than for the glory of science."

And we strode boldly into the compartment. It boasted of some eight or ten indifferent warriors. Straight to the chairs prepared for out-going traffic we made our way, assuming a matter-of-fact manner that hid our fluttering hearts. Without haste we joined two cars and were about to seat ourselves when a sleepy guard sauntered up and lazily requested our passes. Acting on impulse, I busied myself with three other carriers, hooking them up to the original two.

"We await the rest of our party who bear our permits," I explained, indicating the chairs. "They are three and will arrive shortly."

Satisfied, the man turned and started back to the bench upon which lolled his fellows. Slowly, seemingly unconcerned, I climbed to the foremost car and adjusted my safety belts. Latvu had already done this, for he was quick to catch my daring plan. There we sat awaiting our mythical companions until the guard reached a point far enough away to make sure that he could not impede our escape.

Then I slammed the lever over and we shot forward, followed by the cries of the men behind us. Out into second and over to third we flew, leaving the Palace far behind. I set the dial on Laedi's Station and turned to grin at Latvu. His answering grimace was most complimentary. Our success, so far, was astounding. How much further we could go before our luck failed I dared not estimate.

Outside of our visit to Laedi I had no plans for the future. First must I learn from him how much he was to suffer on my account. Then, too, there was Votta.

As I left the Taumbs and hurried up the lift and corridors to their apartment, I confess my thoughts were

more upon this bewitching girl than upon her father.

There, in the eating chamber, I stumbled over the body of Vuotd, my ex-tutor. He had been literally cut to pieces by the hacking swords of some unknown foe. Choking with rage and fear I raced through the seemingly endless suite of rooms searching always for that which I hoped not to find. Upon every side was unmistakable evidence that a terrific struggle had taken place. Servants of Laedi were stretched in death in each compartment. Unarmed as they were, they must have been brutally cut down in cold blood. Arms and fingers had been sliced off as the fearless men fought with bare hands to stem the tide.

In Laedi's sleeping quarters I found the man sprawled awkwardly on the floor, dying. Life was rapidly leaving the brave noble because of an ugly hole in his side.

As I lifted him to the bed, his eyes opened slightly. They mirrored the torture that he must be suffering, though they softened ever so little as he recognized me.

"Tis you, Adu," he whispered. "Thank the Maker-of-all-Things. How—but wait! I have much to tell, and time is short."

"You have seen what has happened. Shortly after I returned, it began. Crestless men broke in and carried on this terrible massacre that ended only after I had fallen before their blades. Without identification, as they were, I recognized many as men of the Dedul. He sought to do treacherously that which he dared not do openly. Not only has he succeeded, but he has taken Votta." His voice broke. I swore softly. With an effort the rapidly weakening man continued. "Long has Zemd tried to win my daughter, but always has she spurned him. Through Baku he will now undoubtedly achieve his heart's desire. But that must not be. She has already made her choice and that—" he hesitated, "is you—if you will have her. Men of Luvium fight—" here he struggled to rise but his strength was gone. For a moment he lay wide eyed clutching my hand in terror. Then, "I cannot. I cannot," he cried. "Adu, swear you will—" Suddenly his voice caught and trailed off to nothing. His throat rasped the warning and it was over.

With tears in my eyes I rose from the death bed and faced Latvu. I had entered the room with but a hazy notion of any future proceedings that must follow. Now all was clear. Laedi's death must be avenged and Votta must be found. "If I would have her—" God! Now that I knew she loved me I would dare anything. I would take the city! That was it. First would I seize the Palace and then, little by little reach out until all Luvium lay in my power. But first must I have men to follow me. Alone I could accomplish nothing.

There at the side of Laedi's bed, I put my mad proposal to Latvu and together we planned to rid Luvium of its hated Monarch. Highly skeptical at first my colleague became more and more enthusiastic as I raved on. Finally he could restrain himself no longer.

"Well are you called Adu, the stranger," he exclaimed. "For no more daring and inconceivable thought was ever known. We cannot be successful, but it is well worth the try. Come, we will attempt that which no one has thought possible."

"But wait," I cautioned. "Are we certain that we can find men to follow us on this wild venture?"

Latvu's eyes sparkled. "You know not the men of Luvium," he replied. "To them the word fear is un-

known. Fully half the nobles of the council table are lifelong friends of Laedi. The news of his death and the knowledge of his indirect murder will bring them flocking to our side, eager to be at the throat of their Dedul."

"But even they—is that enough," I asked.

"You forget," he cried, "the dying men in the mines. Weeks will they live before their last bone is eaten away and much can they do in that time. Do not think that they will hesitate to fight against the man who doomed them."

On the second-thought, my plan seemed not so mad. At least we would take the Palace with the nobles in back of me. I was not so sure of the men of the mines.

"How can you assemble these lost souls to make possible our massed attack?" I queried.

Latvu was impatient. "Just as I have told you," he explained. "It will be simple. The word will spread like wild-fire through the mines. As they live their short life within the caves, they can easily make their way without detection to the Mines of Laedi, where we are to meet."

"It will be much more difficult to approach the nobles, for I must avoid being retaken. Either personally or through those I can trust, I will pass the word along. They, in turn, will inform their fighting men."

I was satisfied. Had I been able to choose, I could not have picked a more capable lieutenant than Latvu.

"Look for me with at least five thousand warriors," was his encouraging statement. "We will meet you in the Caves of Laedi the third rest period from this—unless you hear otherwise. Doma!"

"Good-bye," I echoed. "And good luck." And he hurried away.

I passed the time wandering about the city, eating and sleeping in public houses. At the first opportunity I exchanged my rich trappings for the less pretentious metal of an unattached citizen. Time and again I heard my name mentioned over the Teletadta (a Luvium radio). But I was safe. I was but one in millions.

No word had I heard of the threatened uprising, so I concluded that Latvu was doing his work well. His task was not an easy one and I was righteously troubled as I sped towards our meeting place at the beginning of the third rest. Was my able friend surprised while at his perilous pursuit and did he now lie chained in some forgotten cell beneath the mighty Palace? I had no way of knowing. More and more I realized that whatever success might be ours, depended solely upon him.

But my fears were groundless. Deep within a massive chamber of Laedi, I found some three thousand heavily armed warriors awaiting my coming. More were streaming in from all passageways. Latvu had been fortunate beyond all reason. A good six thousand throats roared forth a greeting as I stepped upon the raised platform. As many head-dresses shook vigorously as I unfolded my plan. Some there were who voiced their disapproval but not many. These were rapidly won over as I hurriedly sketched the attack. Briefly it was this:

The main body of the army was to march from the mines through the deserted streets to the Palace. There they were to concentrate the attack on the main entrance and force their way down into the huge lobby. This they were to gain and hold at all costs for to be victorious we must command the exits to the city.

There were only eight other possible means of access to the structure; these being the landing stations of the

underground Taumbs. The remainder of our force was to scatter throughout the city and board the chairs in equal numbers for these points of advantage. Once within a station they were to take possession and prevent reinforcements from entering.

When the success of this venture was assured, our main body *minus* guards for the entrances was to march to the king's quarters and take him prisoner.

As I stepped from the platform I was not sure that the Dedul would long remain a prisoner or at least a live one. His fate was sealed—if we took him. Glancing about me at the hundreds of fighting faces, I was certain we could. But I had not counted upon the thousands guarding the mines of the nobles still loyal to their king. Nor had I thought of the countless unattached men that would rally around their ruler.

Had I but paused to ponder over these facts I might not have been so cock-sure of victory as I swung along at the head of some four thousand silent but grim warriors. Silence was demanded for we must reach our goal without preliminary alarm.

At that we were not so certain that our attack would be a surprise. The alert guard strung about the meeting point had captured ten men attempting to leave ahead of us. Not one had broken through, we were positive, but now an enemy would not find it difficult to slip into a dim avenue, board a Taumb and warn the Dedul. Whether or not this had been done I never learned.

Straight to the descending runway of the Palace we hurried at double-quick time. Down we went into the huge chamber that was literally the heart of the edifice. Sweeping aside the customary guards, we poured into the space to meet our first real resistance.

It did not last long, for we greatly outnumbered the band that had been hastily thrown together. True, their silent radium projectors tore great holes in our front, but ours did too. And then we were upon them with our swords. Man to man encounters so necessary in cramped Luvium tend to make the rifle useless at close range. It stands to reason that a warrior could as easily destroy friend as foe in such a battle. Thus it was that we fell upon them and wiped them out of existence. The Palace, we thought, was ours.

Word came from each of the eight stations that spoke of amazing success. The King, the Palace and the city belonged to us; we went wild with joy. Singing and shouting we set out for the King's Quarters, leaving a handful of men to watch the entrance.

The corridors and elevators were not in motion, necessitating long weary climbs and equally tiring marches through the many passages. Always were desperate warriors hurling themselves upon us from each side with monotonous regularity, all of which served to slightly cool our enthusiasm. Many we left to die in the passes that we followed and many of these were those who had sworn to follow me.

Long before we reached the outer chambers of the King's private suite, I began to have grave doubts. At each new turn and intersection we lost more men than we could afford. My fears grew and as I looked at the pitiful remnant that had so eagerly pushed forward, I sensed that they, too, were not sure of the outcome. Would our gallant effort fall short on the very threshold of success? It could not, for we must avenge Laedi and Votta must be found.

Little did I care about the King. The hard men at my side would take charge of his wrinkled carcass. My thoughts were only for Votta.

Onward we went until we reached the abode of Baku. Racing through the chambers, we sought the cunning devil. His personal body guard fought much as had those of Laedi, but the Dedul himself had vanished. Not the slightest trace of him did we find, nor was Votta within the sacred dwelling. Crestfallen and beaten, we assembled to discuss our next move. A scarce handful were we compared to the mighty army that had set out so jubilantly.

Then, into the midst of the discouraged group raced a bloody warrior, bearing fresh news of calamity.

"Prepare yourself," he screamed, "for all is lost! From the mines they come, thousands strong. Even now they march upon us through the Palace. Our guard at the castle front fought well but the others were as many as the stones of Luvium."

Instantly bedlam broke forth among the now thoroughly alarmed group. They turned to me for counsel.

"Men of Luvium," I cried. "You who know no fear; you well know that this is the end. Sword or capture it will be the same, for your Dedul is heartless; none will be spared."

"Better is it that we scatter and deal with them as we were dealt with through the long tortuous passages. As you die, take with you the satisfaction that you do not die alone. Keep sharp watch for the crafty Baku. May he be with us as we stand before the Maker-of-All-Things." And I bid them go.

With loud cheers they rapidly emptied the room. Latvu and I together with three other warriors, hurried from the room and sought side avenues to lead us to a spot wherein we might sell our lives dearly.

Swinging around a corner on one of these side passes, we plunged headlong into a party of eight fighting men of the House of Baku. Between them they dragged a struggling woman. With a cry of rage, I sprang forward, my heart pounding fiercely. I found Votta.

IN an instant we were upon them. Caught completely off guard, two went down before our steel at our first rush. Six to five they stood, with the odds in their favor; but the fact that we were fighting for Votta more than evened matters. They were only battling for their lives!

I fought like a man possessed. Every trick, every thrust that I had ever learned was brought into play. But these men were no fools. Picked from the best of the King's Retinue they stood well to defend this honor.

Two had singled me out for their particular quarry, for no doubt they knew the part I played in this uprising. Great would be their reward if I went down before them. Apart from the rest we parried. One attempted to bring into action his radium killer, while the other fought to hold me off. They failed! I doubt if a dozen men could have held me long with Votta there to watch me. Redoubling my efforts, I sent my lone antagonist reeling backward, whirling in time to run through the fellow handling the rifle. I met the other's furious recovery with a frenzy that equalled his own. It was not long. As my point slipped beneath his ribs, I leaped about to aid my comrades. Only two remained on their feet, Latvu and a bleeding foe upon whom he wasted little time. Even as I turned, he sent his man crashing

to the stone with a foot of steel buried in his throat.

Then it was I faced Votta, who all this time had crouched terror stricken against the wall. With a little sob of relief she sprang towards me and, quite as naturally as though I had done it all my life, I folded her into my arms, covering her face with hungry kisses. All this and more before the astonished Latvu, until that stalwart warrior, finding his tongue, brought us back to earth.

"Come, my friend," he cautioned, "forget not in your love-making that we have yet to deal with Baku. Life to you will seem much sweeter now, so we must find a way to preserve it, rather than to sell it as we had planned. Could we but make the city—" he ended lamely; there was little hope in his idle words.

Back into my head came my previous plan for escape. If we could fight our way through the Mines of Zemd, we might reach my world by means of the caves. It stood as a long chance, but we must take it. Should we remain here or in Luvium, itself, naught but death would await us.

"Latvu," I said, "rack that mighty brain of yours and find some way for us to leave this place of death. If we could reach the Taumbs, we might be able to make our way to the tunnel through which I entered your buried city. What say you to a life amongst my people upon the Voilt?"

"If there is such a place, why not?" he muttered, more to himself than to me. "Death is certain in Luvium."

"And you, Votta?" I asked, sick with the fear that she would refuse.

"I will go with you anywhere," she replied, simply. "Nothing is there in the land of my life to hold me. My father—" her lips trembled and tears welled in her eyes. Once again I gathered her in my arms, but Latvu interrupted with a shout:

"I have it," he cried, "if musty old Baku has once more cut in on his power, we can easily reach the lower levels. That he must have done long before, to more easily scour the building for such parties as ours. Upon each floor, at regular intervals, is the typical automatic hoist of Luvium. In this way, we may reach the chairs. The overpowering of the guard I leave to you. Come!"

Once again was my companion correct in his judgment. More than that, we found our particular station still in the hands of our party. It took but a moment to tell them of the catastrophe that had befallen our faithful little band.

Convinced of the hopelessness of the situation, they boarded chairs directly behind us and left the room to itself, dropping off one by one as we sped towards the Mines of Zemd.

As we drew near our goal I dropped into second gear to proceed with justifiable caution. Not a single warrior had we passed coming from our destination. This was strange, for always are the mines bustling with activity.

And then I remembered! The Dedul had called all the men from the mines to his protection. I could have cried aloud for joy. Back to third gear I went, humming a happy tune. Soon we would be far beyond the clutches of the tyrant of Luvium. With Votta at my side, how wonderful the world would be. But—perhaps I sang too soon!

(Continued on page 759)

*Thornton was startled and looked up.
What was that? . . . Good God! . . .
he was not too late! They looked
questioningly at each other. No, that
could not be.*



The Antarctic Transformation

By I. R. Nathanson

Author of "Moon People of Jupiter," "The Passing Star," etc.

WITH the Lindberghs and the Hawks and the numerous other exploring and investigating fliers risking their lives for the benefit of the future of aviation, it is not at all unlikely that the Polar Regions may soon become accessible to enterprising engineers and mechanics of the present age, who may find vast natural resources which might with their aid, assume great industrial proportions. Mr. Nathanson, in his usual manner, depicts in this impressive story the results of such an expedition and makes it fraught with thrills.

Illustrated by MOREY

WHEN Benjamin Smith joined the famous Kingsbury Antarctic Expedition, in the capacity of geologist, little did he or anyone else dream that he was destined to conceive one of the most momentous ideas in history.

Ben was about thirty years of age, tall, thin and of studious appearance. He was well known as an engineer of great ability. But he was still better known in scientific circles as a geologist of note who had distinguished himself by several important contributions to that science—a singular accomplishment for one man in two separate fields.

During the long stay of the Kingsbury Expedition in the frozen continent, Smith was commissioned to head a geological party on an extensive exploration into regions never before pierced by man.

Gaily and brimming with enthusiasm, the little group of five men, who comprised the geological party, pointed their sleds south; and, amidst the cheers and good byes of their comrades at the main base camp, fared forth on their great adventure.

After terrific hardships, they succeeded in penetrating a most forbidding territory, which, in its almost insurmountable barriers, tried every last ounce of their endurance, and more than once came well nigh being their everlasting tomb.

To cap it all they came to an extensive region crisscrossed by impassable crevasses and surrounded by unscalable peaks. The whole area was full of deep and

dangerous cracks and large holes, from which there issued dense clouds of escaping steam and enormous geysers of boiling water. Condensing vapor from the hissing jets of steam, which shot forth to great height, filled the air; the whole region was a forbidding yet awe-inspiring picture of Hades struggling to burst forth in the frozen wilderness. What went on beneath the unknown hundreds of feet thickness of ice which covered the land surface, they could but guess and marvel at in fearful astonishment.

At the risk of their lives, and urged on by Ben Smith, the party penetrated the forbidding region to gather available data of this remarkable phenomenon. Shortly after, they came to an immense chasm where the most awe-inspiring spectacle greeted their eyes.

From their position high on top of the ice sheet, they looked down on a great steam-laden geyser basin of enormous extent, which stretched away as far as the eye could see. The floor of this geyser basin, hundreds of feet below them, and apparently free of ice, was full of holes and cracks and fissures, from which spouted and hissed innumerable gigantic geysers and clouds of steam, filling the whole basin with an inferno of light and sound.

Determined at any cost to explore the floor of this immense chasm formed by the great geyser basin in the heart of the melted icecap, Ben Smith and his companions descended to the bottom, where they lingered a long time, fascinated by their discoveries.

It was here that Smith conceived his momentous idea.

In his mind there was formed a vivid mental picture of what was going on thousands of feet below in the interior of the earth. From somewhere, whence no one knew, some mighty subterranean river or rivers of water flowed through innumerable passages in the hot rocky interior deep in the earth; became heated to a steaming temperature as it flowed on, emptying somewhere far away, no man knew where. In the chasm of the Great Geyser Basin, the mighty passage of superheated waters, forced upward by the tremendous internal pressure, as well as due to the natural folding of the earth, came within a short distance of the rocky surface of the basin; from the many cracks whence came the escaping hot water and steam. The subterranean waters then dipped down again and continued their buried flow to some unknown destination.

After much hardship and hair-breadth escapes, the geological party returned to the main base of the expedition.

WITH the return of the Kingsbury Expedition to civilization, the discovery of the remarkable geyser basin existing in the Antarctic became a matter of academic interest, for which the heroic band of geologists received the highest praise. But to Benjamin Smith the wonderful phenomenon buried in the heart of the frozen continent suggested something more than mere wonder. Gradually the idea which his mind had conceived crystallized into a definite plan, which in the vastness of the concept, the grandiosity of its scale, would conceivably enrich the lives of millions of people, and in time assume a far-reaching rôle in the affairs of the world.

His idea in brief was this: If the inexhaustible volume of heated water could be released at the points where the subterranean passages came so close to the surface, and then caused to continue its flow outside over the land. . . . the warmth and latent heat of this enormous body of superheated water, as it moved to the sea, would soon bring about a vast change in the climate over an enormous area of the frozen continent.

Furthermore, his explorations had disclosed an extensive surface soil underneath the ice cap; indicating plainly that, at one time in the geologic past, what was now a frozen waste had been, before the advent of the ice age, a land of warmth and life, perhaps sub-tropical in nature.

His plan, if carried out, would restore, in a large portion of it at least, the primeval fertility of the continent, creating a blooming paradise, capable of supporting a great civilization, where now was a frozen waste. And who knew what untold wealth would be disclosed in the exposing of thousands of square miles of earth now hidden by the superimposed ice-cap.

Practical engineer as well as geologist, he set to work making definite working plans. These finished, checked and found mathematically sound, he began to study about the first steps in launching a project of such magnitude. Of the soundness of his plan he had no doubt. The main thing would be the raising of the enormous finances required. Of that he also felt no doubt; for who could fail to see the far-reaching benefits to all—the opening of a new continent!

Blithely Benjamin Smith launched forth on his course. He had the idea, the plans: the world had the needed money. All that was needed was a union of the two.

AS his first move, he began by arranging interviews, to interest several prominent statesmen in Washington. Lightheartedly he set out for the capital; there to confer with the great leaders, who by their breadth of vision, their statesmanship, their publicly acclaimed abilities, could scarcely fail to grasp at once the greatness, the feasibility of his wonderful conception. And surely they would back him; to the glory and profit of himself and themselves and their country—an achievement that should go down in history without parallel.

Then commenced a long series of disheartening and heartbreaking interviews, over a continuously lengthening time, without any apparent hope of ever getting anywhere.

The great statesmen and government officials whom he interviewed received him with politeness and listened more or less attentively to his well thought out plans. But just as soon as they caught the drift of his ideas, pregnant with the climatic transformation of a continent, their time became very short. And with brief formality and meaning looks, that ran all the way from unspoken pity to brusque evasion, to impatient contempt, the geologist-engineer was ushered quickly out of the presence of the important individuals.

Some were greatly amused, and said it was a "great idea"; some wished him Methuselah's life, so he could see it through; others told him more or less plainly there were many well kept institutions for such as he, where he could peacefully continue with his dreams. And one great statesman smiled and offered him a cigar and stood up, signifying the end of the interview—and the end of his hopes. "I didn't know that there were such animals running around loose these days," was the flitting thought that ran through the great man's mind. "Oh—hum," and he turned to his papers.

SADLY and dejectedly our would-be continental transformer turned homeward. The governmental authorities would have nothing to do with the crazy idea, even though he was a reputable scientist. His ideas and his clear, well worked-out plans for its realization were brushed aside as the vaporings of a two-year old babe. He suffered cruelly from his disillusionment.

With all due respect to our hero's great genius, he was woefully lacking in worldliness. In particular was he lacking in a knowledge of the workings of the mind which go to make up a successful politician, too often mistaken for real statesmanship. He did not know that these worthy gentlemen in control of the body politic are, as a class, singularly devoid of broad vision and of a grasp of the prime moving forces of civilization. So that of all people, Smith had unknowingly sought to interest just those types of people who by nature and training are least capable of imagining such ideas as he sought to bring to realization.

Still determined, however, and gathering fresh courage, our hero began to seek other channels. From statesmen of national repute, he turned to enlist the aid of rich individuals and corporations.

Then commenced more interminable interviews, rejections, disappointments, heartless ridicule; and in one particular case, actual ejection by an irate capitalist, who, exasperated by the persistent theorist, pushed him out none too gently, causing Mr. Smith to stumble into an undignified position on his coat tails.

To his dismay and bitter disillusionment, the deep

thinking but unworldly Benjamin Smith found that rich men are not necessarily more capable or avid of grabbing his great idea than were the great statesmen.

So time went by. In Smith's mind only did his great conception of the Antarctic transformation live on. Before his mind's eye would ever arise the grand vision of a long and broad fertile land, through which flowed mighty rivers of warm water, spreading their beneficent, life-giving warmth over a new-born region, with balmy breezes and "flowing with milk and honey." Beautiful homes, green valleys and growing things covered the new land. Mammoth industries thrived and drew their power from the same subterranean reservoir. Happy people building a great new civilization, connected with the rest of the world by a constant stream of vessels that came and went by water and air, was his dream.

OUTSIDE of his great dream, with the passing of time, something else came into his life. He had fallen in love.

But that did not by any means indicate that Norma Hastings, the attractive twenty-two year old girl he was in love with, returned his all too evident affections. In spite of all his attentions, she was almost as elusive as was his other great unrealized dream—he hardly knew which was the most unattainable, achievement or love.

One of the seemingly greatest obstacles in the way of Ben Smith's realization of the quest of his heart, aside from the uncertainty of the true direction of the young lady's feelings—an obstacle which smote him cruelly and filled him with much painful jealousy—was none other than a certain young man by the name of Roger Thornton; who just as keenly and ardently and jealously wooed the girl for himself.

A bitter hatred quickly grew up between the two, as in the selfsame quest they were frequently and painfully and often unwillingly brought together—pretty Norma Hastings taking keen delight in the polite but deadly clash of her two jealous suitors.

Roger Thornton, his bitter rival, was young, rich, handsome and a member of an influential family. He had been greatly favored in life's struggle, through no particular effort of his own; and grew up very much spoiled, used to being favored and petted. His station in life enabled him to continue in that pleasant status.

Accordingly, Ben's intense rivalry for the hand of the girl Roger Thornton had set his heart on was an ever-present, painful thorn in the latter's daily life. If the former was never sure of the girl's ultimate favor, neither was he. It irritated and upset him greatly, to say the least; and he hated Smith with a hatred that knew no bounds.

As luck would have it, on one of Ben's visits to the Hastings home, who should pop in unexpectedly on the two but Roger Thornton himself. Surprised and chagrined to find his hated rival there, Thornton nodded curtly and glared rather barbarously at Ben, which glare was returned with ample interest. As the two gentlemen were both of a dynamic, tempestuous nature, the more surprising in a dreamer type like Ben, this sudden injection of the old problem of the triangle was fraught with dynamite. The air began to crackle from an accumulating surcharge of electricity. Conversation lagged, faltered and reached the vanishing point. And it was only the good breeding of the two men which prevented

anything altogether too rude from breaking out in the open.

Through it all, the demure young lady tried her best to keep up a show of liveliness, without much success. Actually she enjoyed it. Within her stirred ancient instincts of the forgotten past, still working powerfully under the veneer of civilization. Shyly she reveled in thus becoming the object of this modern version of the primeval struggle of two males for a female. Sophisticated and clever, she was deliciously aware of what was going on right before her, but pretended not to notice it.

"And how is your scheme of changing Antarctica coming along?" Thornton asked with thinly veiled sarcasm, almost a sneer on his face. "Raised your billion yet?"

The other reddened and bit his lip. The shaft was all too plainly aimed for the girl's benefit. The many rebuffs which his struggle to carry out his plans had received made him quite sensitive.

"Why don't you see John Dykeman? Maybe he might get interested in your scheme," with emphasis on scheme. "You know, he has just recently come into full control of his father's estate." Taunt and mockery played over Thornton's face, as he looked pointedly first at Ben, then at the girl. He'd make a fool of that fellow right before Norma's eyes, so she could see for herself the difference between them.

Full well he knew, as did the others, the reputation of the elder Dykeman's hard-fistedness and his son's reputed following in his father's footsteps. Would that that whelp of a Dykeman should fall for that fool engineer and lose a fortune thereby. But no such luck—the Dykemans were too shrewd.

SOMETIMES men build better than they know. And sometimes ill-meant advice brings good fruit and redounds to the disadvantage of the evil-wisher.

Thornton's suggestion about seeing the enormously rich young Dykeman struck home. In his former efforts he had never bethought himself of seeking out the elder Dykeman, whose hard-headedness was a by-word. But now, since his son had recently come into full control of the father's vast interests, Smith made up his mind to see if he could interest him.

It took considerable wire-pulling, but at last an interview was arranged with the rich as well as influential John Dykeman Jr. As Ben was ushered into the former's private office, he trembled slightly; so much might come of such an interview.

John Dykeman was a young man in the early thirties. He was rather undersized, thin, and at first sight, gave one an impression of insignificance. But you soon forgot all that when you faced him. He was possessed of a magnificent brow, firmly held mouth and jaw, and marvelous steel-blue eyes that burned like coals and looked you through and through. Here was no pygmy mind. Clearly John Dykeman held a firm hand on the vast enterprises created and developed by his lately deceased father.

Briefly as he could, Ben stated his case. Throughout it all Dykeman listened carefully and with wrapt attention. As Ben warmed up to the subject, the other Man's face lit up with a strange light. From time to time he nodded and said, "I see, I see;" which to the enthusiastic engineer meant everything and anything.

Followed a series of conferences between Ben Smith and John Dykeman. The more he went into it the more the latter was impressed with the magnificence of the idea and with its feasibility. There was a good deal of the daring pioneer, the sportsman in him, but withal his keen practical mind never failed him. And he had imagination—a gift not always possessed by the man of practical affairs—and it was fired by the dream of the engineer-geologist.

A SPLENDIDLY equipped expedition, financed by Dykeman's millions, was first sent out to bring back an independent report on the feasibility of the proposed project. It gave enthusiastic support to the original findings of Ben Smith.

Then, in every paper and public agency throughout the world appeared the announcements of the floating of the largest single company in history.

What the lone Smith, armed only with his idea, had failed to start, John Dykeman, Jr., and his associates—powers in the industrial and financial worlds—were setting in motion. Through their enormous influence and powerful connections, and backed by the unlimited Dykeman millions, numerous wealthy individuals, banks and organizations became interested. An intense preliminary propaganda, with all the art and resources of the best advertising genius available, apprized the entire world of the great project in glowing terms, and urged everyone to partake in its limitless possibilities.

When the subscription books closed, a vast flood of gold from every land had poured into the headquarters of the Antarctic Development Corporation. Once launched by the proper agencies, there were found legions of people the world over, whose imagination was fired by the unprecedented magnificence of the idea and its heroic meaning; as well as the many who are ever seeking fabulous gain. The outstanding stock was soon bought up.

MOST amazed of all who were in any way interested, was Roger Thornton. To his dying day he could not understand how, in the name of all that was sensible, that fool of an engineer had succeeded in interesting young Dykeman, who was responsible for having started the financial ball rolling. To him the whole business was a flat piece of nonsense, ridiculous to the extreme; an impossible thing, a wild-goose chase after a chimera, that could only end in vast sums going to waste in the ice and snow at the bottom of the earth. He almost laughed up his sleeve.

Well, they would get no money of his, to further a thing like that—although it suited his purpose to pretend that he was greatly interested, and even promised to invest heavily, with no intention of doing so.

He had a vindictive, jealous nature. He hated Dykeman no less than he hated Smith, with a bitter hatred that had grown steadily out of business rivalry, especially as the Dykeman fortunes had by now grown entirely out of his class—though he himself was a very rich man. It would therefore have suited him exactly to see the Antarctic Development Corporation go down in failure and ignominy, together with Dykeman's reputation and personal fortune.

"I hope he loses his shirt in that venture," was the pleasant wish he privately nursed within himself; and as to that silly fool of a Smith—well, it's very cold in

the Antarctic. . . . By all means he must encourage the crazy venture.

"What do you think of the Antarctic venture now, Roger?" Norma had asked him.

"Great! Splendid!"

She looked up at him quickly, doubtfully, as if puzzled at this change in his former opinions. "Do you really believe it will succeed?"

"Of course, of course—with such men at the head of it."

"I'm so glad, so glad; it's been so much on my mind, and—" she paused, and it was his turn to look at her sharply.

"I guess I never will understand a woman," he said to himself.

THE gigantic preparations for the great Antarctic Conquest were far advanced and nearing completion. With unstinted capital and almost unlimited resources, things were moving rapidly, although it seemed extremely slowly to the impatient inventor of the idea.

Soon a vast armada would be leaving for the far south.

But though he scarcely had time to think or rest, his heart was hungry, compellingly hungry. At times he almost wondered—after all, what did it all mean if—if she did not. . . . His heart constricted and he shivered. Involuntarily a painful picture of Norma in Roger Thornton's arms flashed across his inner vision. He winced and almost cried aloud. "I must go to her, and declare myself. I must know before I leave—come what will."

THEY were in the spacious living room of the Hastings home; alone, and it was getting late. She was sweet and friendly in her usual manner, charmingly reserved, but she seemed very pensive.

Several times he was on the verge of speaking what lay close to his heart; but each time some uncontrollable timidity held him back. He was one of those types of lovers who put the one they love on a pedestal. She seemed so unapproachable. Always he was like a timid schoolboy in her presence.

It was a gorgeous summer night, and they walked out on the terrace. Silently they stood side by side looking out into the distance, shrouded with the brooding mantle of night. The sky was clear, the air soft and warm. Low on the southern horizon stretched Scorpio, fiery Antares ablaze. Overhead the starry vault bejewelled with the summer constellations, Aquila, Cygnus, Lyra with the brilliant Vega.

For long they stood, speaking scarcely a word, each in the grip of a powerful emotion. Gently his arm stole around her, drew her to him with a caressing movement. He thrilled when she made no resistance—leaned toward him; thrilled as her soft arm encircled his neck, her fingers running lovingly through his hair.

"Norma, soon I shall be leaving you for a long time. That is the hardest thing for me to bear. But when I return . . . we shall be united forever."

"I shall wait for you, Ben, always, till my last breath," and she snuggled in his arms.

THE strangest and most inspiring sight ever witnessed on this planet was going on.

In the far southern waters of the Antarctic Ocean

the mightiest armada ever gathered was heading its way to the frozen continent. But it was no armada on the way to blood and conquest of man over man. It was a vastly more inspiring and noble struggle of man's conquest over the blind forces of nature. It was a mighty armada for peace, for achievement, for the furtherance of human happiness, to add to the greatness of man and his works.

As far as the eye could see, from horizon to horizon, stretched long lines of mighty ships specially equipped for the expedition, laden with the instruments of achievement. It was the first time in the history of mankind that such a vast effort with the accompanying expenditure of wealth and material was to be made in the interest of progress and upbuilding, not of war and destruction.

As chief of the entire expedition went Benjamin Smith. At his side, brimming with boyish enthusiasm, was John Dykeman, financial head and sponsor. A large, well selected staff of engineers and scientists were on hand together with an army of workers in every walk of life. It had been no difficulty to obtain more men than were needed, as the lure of adventure is in almost every man's blood. On many transports were vast quantities of supplies of all kinds; excavating and building machinery, explosives, food and everything else needed.

The work commenced methodically and with little waste. Advance parties had already led the way, laying out and building landing bases for the army of workers who were to follow.

A scene of activity began on the frozen continent such as no one ever dreamed of before. To move the vast quantities of supplies and heavy machinery from the bases first established near the great ice barrier to the Geyser Basin, where the actual work on the project was to begin, a unique system of transportation was devised by Smith, which had previously been tested and worked splendidly. Long steel cars on part sled and caterpillar runners, capable of carrying heavy loads, were adequately powered by powerful airplane motors in combination with huge four-bladed airplane propellers. By this method the tractive problem was solved efficiently and well. The great length of the cars made them independent of all ordinary obstructions or breaks in the ice, and comparatively long distances could be covered in a day at good speed. In addition a huge fleet of large freight-carrying planes aided in the quick transportation of men and supplies.

In a surprisingly short time, the Great Geyser Basin, as it was to be known, became one huge construction camp. With everything planned with care and foresight, with the workers housed warmly and comfortably, their health, their comforts and even their amusements carefully seen to, very few mishaps occurred for an undertaking of such magnitude.

FROM every land came a steady stream of men and supplies, converging on New Zealand, thence on to Antarctica and the Geyser Basin, about six hundred miles from the ice barrier.

The proceedings were watched with the greatest interest all over the world. Every step was enthusiastically followed by millions. People sat at home in their comfortable chairs by their warm firesides, and through their radio and television sets looked on the toiling army

so far away at the frozen bottom of the earth. Here at last was something on which the common interest of a whole humanity could center without heartache or discord, without bickering, jealousy or strife.

It was the greatest single lesson for universal progress and peace.

The work went on steadily throughout the long summer day; and continued throughout the long winter night. There was to be no long, nerve-trying idling during the bitterly cold Antarctic night. All the way from the base camps near the edge of the continent to the geyser region, blazing electric lights were strung. And inside heated vehicles, propelled at a goodly speed along the brightly-lit ways, men and supplies moved steadily forward to the main center of operations. Veritable temporary cities sprang up; innumerable lights blazed their cheerful glow; and in spite of the frigid sky and the howling blizzards, there was comfort and cheer.

Shades of Amundsen, Scott and Andrée, and all the other great heroes who perished near the poles of the earth! What were these men doing?

AT last the great engineering works in the geyser basin, that was to direct the vast flood of hot waters, when the time came for its release, and send it flowing in mighty streams to the distant ocean, was nearing completion. The natural courses which the waters would follow were closely plotted.

The region selected for the blow-off was being prepared and mined with mountains of the most powerful explosives. An area five miles long and hundreds of feet wide, where the subterranean waters came closest to the rocky surface, was to be blown up at a given signal in one vast, mighty explosion—the largest single artificial explosion in the history of the planet. The mighty upheaval was planned to block the northern subterranean passages and bring the liberated steaming waters to the surface, where it would continue its uninterrupted flow to the sea, melting the surrounding glaciers and ice-sleet to great distances, and imparting to the climate its life-giving heat on the way. Thus would begin the great transformation.

AMONG all the people back home, who were following with more or less interest the fortunes of the gigantic enterprise in the frozen south, there were two individuals who were particularly and vitally interested in the outcome. One, a young woman, lonesome and heartsick for her betrothed, hoping and praying for the success of the great undertaking and for her lover's safe return. The other, a jealous, envious, hate-filled man, who, with equal intensity, hoped and prayed for the expedition's failure.

Throughout Ben's long absence, laboring far away at the other end of the earth, Roger Thornton paid persistent court to Norma Hastings. But, true to her distant lover, she gave him scant encouragement, and even sent him about his business.

Thornton, however, was not one easily to be brushed aside. Whatever else may be said of him, he was really and desperately in love with the girl, and was of the kind that would stoop to a whole lot to gain his object. And there was a certain recklessness and daring about him which made him an exceedingly dangerous man when aroused.

He was consumed with jealousy and desire; burning up with hate for the man who had bested him in love; and with equal hatred and envy for Dykeman, his bitter business rival. Constantly arriving reports had begun to make him fearful of the success of their undertaking; and he had ceased to scoff.

Thus within the breast of the man flamed two powerful emotions: one based on economic rivalry; the other, the ancient violent force of sex—two motives which in a man of Thornton's nature might lead to anything.

Ah, if only something would happen out there; something go wrong; something that would cause the failure of the whole venture and send the two leaders home discredited and ruined—or perhaps . . . it was a long distance from home . . . and anything could happen. Curses on those two! In his hate-devoured mind things shaped themselves so that he blamed Smith and Dykeman for robbing him of peace and happiness and what, to his way of thinking, rightfully belonged to him.

Yes, if only something would happen. . . . That was it—Why can't something happen? . . . Why not? . . . [With Smith and Dykeman out of the way. . . . And he regaled himself with pleasant phantasies of winning Norma, of his great business rival ruined, that engineer gone to perdition. . . . Sinister thoughts flitted through his mind—and he quailed. He did not quite like to face such dreadful thoughts as presented themselves in order for him to win out.

Well, he would see . . . he would see. . . . Something . . . something had to be done—and soon.

BEN SMITH and John Dykeman were resting in their comfortably furnished, warm quarters after long, gruelling labor. Outside it was 74 degrees below, and a fearful blizzard was raging, burying everything with a thick mantle of powdery snow. During those raging blizzards work went on at a greatly slackened pace.

Stretched out in a restful pose, Ben was suddenly brought to a sitting position by the receipt of a long radiogram from his beloved. Amongst other things, it read:

“—Roger is a pest; I can't get rid of him.

“Of late he has become very interested in your venture, and questions me closely for detailed information. He says he wants more intimate details on the exact progress of the work than can be learned from the public announcements. At first I gave him all the information I had, not thinking there could be any harm in it; but now, I don't know why, I am worried.

“Last night he came to me and told me he had fitted out a small expedition of his own, as he was desirous of making a private trip to investigate the scene of operations for himself before buying heavily of Antarctic Corporation stock.

“I understand he has outfitted two vessels for the trip. It is rumored he has gone to extensive preparations. I cannot understand why he should go to all that bother and expense. Anyhow, I thought I would let you know.

“Come home soon and safe. Thinking of you day and night.

“Lovingly—Norma.”

Without a word Ben stood up and handed the radiogram to Dykeman. For some indefinable reason the news quite upset him, and filled him with a strange sense of foreboding ill.

Dykeman wrinkled his brow in deep thought, frowning as he did so. Presently he said, “Do you suppose he's got something on his mind, Ben?”

“I do. Don't you think so, John?”

“I am inclined to think so, too. I know from previous dealings with him that he is unreliable and treacherous. I had to win my rights with him more than once in law suits.”

“But for what reason should he be spending so much money and hazarding a trip like that—that's what puzzles me, John.”

“Plenty of reason, Ben. Didn't you beat his time to that girl? He is full of insufferable pride. I understand he took it into his head that she was his, until you stepped in and won out. I guess he never will forgive you for that.” And John began to tease Ben good-naturedly, as men often do about a girl the other loves. “Neither does he waste any love on me.”

“But what can he have against you?”

Dykeman gave a short laugh. “Plenty, plenty—at least he thinks he has. He tried to trim my father and me in the Acme Steel deal; but we gave him the biggest lickin' of his life. He never will forget that. He's also tried to pull off several other unethical deals which I checkmated. He's out of my running now; but I understand he is still smarting. I'd hate to be in his power, financial or otherwise.”

“But what harm can he do us?”

Dykeman shrugged his shoulders. “None that I can see. I'd say, he'd bear watching, however. He is very vindictive.”

Ben paced up and down, deep in thought, a worried look on his face; in the grip of a nameless feeling of impending disaster.

“Come, come, Ben. As in the good old story books, we'll come out all right in the end, and you'll finish up with Norma in your arms. Really, I can't see what particular harm he can do.”

“I guess not. I guess. . . . We do have mountains of explosives around here, and—” he turned around with a jerk and faced Dykeman. The two contemplated each other in silence, each reading the other's mind. “But, still—I hardly think he'd dare anything like that. . . . Do you?”

Dykeman half closed his eyes and stroked his chin. “I'll flash orders around to keep a close check on his movements. It can do no harm.”

OUT on the high seas, driving before a fierce gale that was sweeping the storm-tossed waters of the Antarctic, treacherous ice all around, two sturdy vessels were heading south.

On the bridge, warmly clad in a heavy ulster, storm cap down to his eyes, and covering his lower face, stood Roger Thornton, peering out on the swirling mist and the mountainous waves; a determined look on his face. At his side stood two others, his close, bosom friends. The cold, fierce wind tore the words out of their mouths, making conversation almost impossible.

Few on board knew the primary purpose of this privately undertaken expedition to the bottom of the earth. With the exception of his two intimates, and a few others sworn to secrecy, under heavy pay, and skilled for the purpose, it was the general belief that the wealthy Mr. Thornton was undertaking this trip out of adventure and for purposes of investment.

Although not planned as a very long trip, as such expeditions go, still the two vessels were well laden with considerable supplies of all sorts. Two vessels were taken along to add to the safety of the trip. In addition to the other equipment on board, were several large planes, and four large and powerful combination caterpillar-sled and airplane propeller land vehicles, specially made in imitation of those used by the Smith-Dykeman expedition.

Although more than one of the crew wondered at the purpose of the Thornton expedition, they dismissed it with a shrug of the shoulders; and, as several remarked, "those rich young fellows sure can think up lots of ways of spending money on a whim."

But it was no "whim" which impelled Thornton to undergo so much hardship and expense, nor even from a sporting sense, nor for purposes of investment; no, nor the lure of adventure to be found in the ends of the earth. Intolerable jealousy, envy, hate and revenge, with a determination to turn it all to his advantage, flamed high within him with an unreasoning intensity, bordering on madness. With his wealth and character, and the tempestuous emotions which gripped him, he was indeed a dangerous man.

For driven by his uncontrollable passions, Thornton had conceived a dangerous and dastardly idea, which he was diabolically determined to carry through at all costs, even with the greatest risk to himself. Just as the creative spirit of Benjamin Smith, in the interest of good and achievement, had conceived the noble and grand mission of transforming a continent, and with the help of the far-seeing young capitalist was proceeding to carry it out; just so, equally in the opposite and destroying spirit, out of personal revenge and dastardly gain, Roger Thornton was determined to render their efforts futile.

He would stop at nothing. Let them beware: if necessary their blood be on their own heads. Evil men have always thus sought to ease their conscience, when about to perpetrate a diabolical deed, by laying the blame on those they seek to destroy. The man to whom you have loaned money when he needed it, avoids you—you are his enemy; the man who has wronged you, seeks to feel righteously angry about it—you are to blame, the devil take you. What stark demons there lurk in the labyrinthine depths of the unplumbed human mind!

Thornton knew by now that the final phases of the great work were nearing completion. He knew of the vast quantities of explosives on hand—knew that the large area which was chosen as the crucial place to be exploded was already in the process of being prepared and mined.

As no secrets had been made of the intricacies of the problems confronting the great undertaking, he knew full well that the well-calculated plans could be wrecked irretrievably. For the task of causing the pent-up heated waters to come to the surface, and the torrential flow chained and guided in the proper manner and direction, depended on the utmost engineering precision. And a premature blowing up of the partially mined area, together with the key engineering works, would spell ruin to the entire project forever.

BUT fate often puts obstacles in the way of the best laid plans.

The Thornton expedition was delayed for more than a month in arriving at the great ice barrier. It was an

unaccountably late spring; and the Antarctic was very cold and terrifically stormy. The water was full of treacherous ice packs and huge icebergs, and the going became increasingly slow and difficult. Again and again they were held fast by the inclosing ice, with the barrier still a long distance away. Thornton was in a raging temper.

At last they reached the barrier, and after much difficulty succeeded in making a landing at a considerable distance from the base camps of the Antarctic Development Corporation. He arrived on the edge of the continent much later than he had planned. But Thornton consoled himself with the knowledge that he still had plenty of time to carry out his dastardly scheme.

His base camp placed, and everything made ready according to plan, he began the final preparations for the over-ice dash to the Great Geyser Basin and back.

For the complete carrying out of his scheme, and in order to avoid detection, it was decided not to use the more speedy airplanes; instead he decided to employ the special combination air-propeller driven cars. These, however, were capable of no mean speed, and could cover the six or seven hundred miles in fairly good time and with a much greater degree of safety.

After the most painstaking preparations, Thornton, his two bosom friends, and six trusted henchmen, set out with three of the machines. In addition to a plentiful supply of food, they took along a quantity of the most powerful explosives in camouflaged containers.

The plan of action was this: After arriving at the Geyser Basin, without being detected, and as close as possible to the great works going on, to make camp there from which to strike the final blow. They were in possession of complete maps and plans of all that was going on in the Geyser Basin, and of the approximately scheduled rate of construction of the great works. Working out from their final base close to the basin, Thornton and his men would mine the key positions of the almost completed works with powerful time-bombs. At the same time, and as the main operation, they would set off prematurely the already partially mined geyser basin which was being prepared and mined by the Smith-Dykeman forces. Time-fuses would do the work.

Then, safe and sound from a distance, Thornton could view the blast which would bury all the hopes and plans of his enemies forever.

With clear weather favoring, Thornton and his party set off for the Great Geyser Basin amidst the cheers and good-byes of those left behind in the base camp; who were totally unaware of the sinister mission on which the departing ones were bent. To all intents and purposes it was nothing but a private sporting and exploratory venture.

At first the Thornton party made rapid progress. Their machines functioned perfectly, covering quite long distances between rests. At sleeping time they rested quite comfortably inside the artificially warmed vehicles.

As day by day the party drew nearer and nearer to their final scene of operations, Thornton's eyes gleamed with savage satisfaction. At last . . . soon, soon, his hated enemies would reckon with him!

But here again, fate, in the form of the terribly difficult elements which hemmed them in, stepped in and caused unexpectedly long delays. In spite of the power of their machines, they were forced to make long, circuitous movements; and with difficulty managed to make

their way around enormous pressure-ridges and over unusually wide crevasses in the ice; which time and again threatened disaster. Time and again they were completely snowed under by great blizzards which struck them down even more frequently and with greater intensity than usual at that time of the year. Several times they lost their way altogether.

At one place the party lost one of their machines irretrievably. In spite of the greatest care it had come unexpectedly on an unusually wide crevasse partially covered with snow, and fell into it, killing two of the men, and unnerving the rest completely. In spite of all their efforts they were unable to retrieve the machine, and were forced to continue on their way with the remaining ones.

Much valuable time was lost. Some of his companions were for turning back; but Thornton would not listen to it, and drove them on. He fumed and raged with impotence at the unavoidable delays. At times he acted almost like a madman. But he consoled himself with the thought that he still had plenty of time, though none to spare.

His enemies would yet feel the power of his hand!

* * *

Over in the headquarters of the Smith-Dykeman camp there was great joy. The works were being completed ahead of time. The great blow-off would take place three months sooner than expected.

"Well, next Monday is the day of the great blow-off," exclaimed Ben jubilantly. "Now comes the crucial test of all our labors."

"Can't come too soon for me," replied John Dykeman. "I am getting mighty anxious to see the climax of the whole show and go home. Is everything all set?"

"Everything ready to a hair," Ben mused a moment in silence. "By the way, wonder what has become of Thornton and his private expedition?" He turned to Dykeman, a trace of anxiety in his eyes.

"Not a word, so far—as if swallowed up; although there has been a sharp lookout for him."

"Strange we haven't heard anything."

"The southern hemisphere is a mighty big place, Ben."

"Do you suppose they ran into trouble at sea?"

"That would be too bad. But then I believe the world might manage to wiggle along without him," and his eyes twinkled humorously.

"For my part, that fellow can live a thousand years, so long as he never comes closer to me than a thousand miles. Just the same, John, that fellow does worry me—I mean until after the blow-off."

"Tut-tut, my dear fellow; don't you worry your precious head about him. Better get your mind on somebody else back there in the States waiting for you," and he poked Ben in the ribs, who grinned and reddened slightly.

Presently Ben said, "I have already issued orders for everybody to clear out beginning tomorrow. We must be getting on our way in order to put many miles behind us when she blows."

FAR away from the scene of operations thousands of men were anxiously gathered, awaiting the supreme culmination of earth's greatest man-made spectacle.

The great moment had come. With beating hearts

and anxious minds Ben Smith and John Dykeman stood side by side, almost holding their breath in awed silence. A terrific tenseness gripped the vast assemblage of workers who had labored to bring this greatest of modern miracles into being.

Ten minutes—five minutes—three minutes—one minute. Ben dug his nails into the palms of his hands, eyes glued on the chronometer. Then far in the distance the heavens flamed, followed by a swift darkening of the horizon. An uncanny stillness.—B-o-o-m-m. From far away came the reverberating echoes of a titanic explosion, a tremendous rumbling that shook the air violently even at their great distance. The earth quaked with a series of shocks that threw many prone.

Clouds that quickly formed on the horizon, storm-like, approached the spectators. Swiftly they overcast the sky and advanced on the men who stood huddled, awe-inspired, in fear and apprehension. No such thing had ever been tried before.

Quickly the approaching clouds became a thick, all enveloping mist, blotting everything from sight. The more timorous ones turned to flee; but the enveloping mist made flight impossible.

Then silence, and the thick mantle of fog and steam. . . . Murmuring voices. . . . plaintive calls from the worried men. . . .

Came a breath of moisture-laden, warm air, followed by blasts of cold. Another breath of air warmer than the first; and others still warmer in a steady caressing embrace. A weird balminess came through the air, like the whispering breath of spring; like the gentle warmth of some invisible radiator.

The thick mantle of steam slightly lifted. And men looked at each other in questioning amazement. . . . Had the thing really happened! Was it to be an accomplished fact?

Then again the vaporous mantle of fog and steam descended and thickened, blotting everything once more from view. A violent wind sprung up, growing ever more violent; blew with terrific gusts almost impossible to withstand. Warm and cold blasts followed each other with bewildering force; grew steadily less and less. Then a great calm settled over the frozen land. The steam clouds lifted. . . . A beneficent warmth like gentle spring pervaded all the region.

GRIMLY bent on reaching their destination, Thornton and his little party labored steadily forward with but little respite for rest. They could not be far away now. They halted for a short period.

Suddenly a tremendously heavy, reverberatingly long explosion, or series of explosions, reached their ears, dull and extremely distant. They felt temblors under their feet, the sickening feelings of an earthquake.

Thornton was startled, and looked up. What was that? . . . Good God!—he was not too late? His party looked questioningly at one another. No, that could not be.

"Let's move on," Thornton ordered; "we have no time to waste." And the tired men moved forward, mile after mile.

Then suddenly, in the distance, what seemed like dense clouds appeared, and approached rapidly. These clouds seemed to fairly leap at them. What was that! Thornton gave orders to halt.

Anxiously they peered into the distance. Swift as

flight, the thickening clouds hurtled forward. In their ears presently sounded a dull rumbling and roaring, as of the distant sound of a huge cataract.

Louder and louder grew the sound; vaster and vaster, as of a million angry spirits. They turned to flee—they knew not from what. "God! . . . what can that be!" exclaimed Thornton between chattering teeth.

And then a vast, tumultuous roaring sounded; and to the eyes of the fear-paralyzed men a mighty wall of angry, hissing, steaming water appeared, high and wide, as far as the eye could see. With a thunderous roar, the hot, swirling torrent rolled over the screaming men. The great roaring flood rushed on.

AS soon as it was deemed safe, Ben Smith and John Dykeman made their way as close as they could to the brink of the raging torrent, to see first hand if everything had happened according to plan.

Arriving within seeing distance, although from far away, as it was extremely dangerous to approach too close, they were overwhelmed by the awesome spectacle before their eyes. Out of a tremendous cleft in the rocky face of the earth, immensely long and wide—seemingly too gigantic to be the handiwork of puny man—there raged forth a mighty outgushing of pent-up superheated waters and steam; accompanied by such a deafening roaring and hissing, as of a thousand great cataracts and geysers all in one. The mighty torrent was rushing forth with explosive force, thrown high and wide by the pent-up energies inside the earth; vast clouds of white steam and sparkling fine mist reaching to the skies and adding to the awe-inspiring spectacle.

The entire geyser basin was soon a vast lake of hot, boiling water over a hundred miles long and almost as wide. Its level rose rapidly till it reached the top of the surrounding ice-sheet; then it overflowed north in two broad, raging torrents, miles in width and nearly a hundred miles apart, that swept all before it, following the natural contour of the land to the distant sea.

It soon became unsafe to linger longer; and the entire working forces of The Antarctic Development Corporation made haste to the sea.

Already the warm torrents were rapidly gouging out deep channels in the hundred-feet thickness of ice through which they rushed with irresistible force. The vast amount of heat liberated by the flowing waters lent a balmy feel to the air, mild and pleasant in its softness. Over the frozen land warm breezes blew. And all around in every direction, everything was melting and cracking and splitting; the ages-old accumulations of ice and snow dissolving before the liberated breath of the internal heat of the earth.

The initial work was accomplished. There was noth-

ing else to do but await the melting of the great ice sheet. In the meantime, the two men most responsible for the success of the great project were speeding homeward to their loved ones; the acclaim of the whole world ringing in their ears.

IT was twenty-five years later.

Two broad, mighty streams of warm water, a hundred miles apart, were sweeping majestically to the Antarctic Ocean, six hundred miles from their source, deep down in the hot bowels of the earth.

Somewhere, from some natural subterranean intake or intakes, an inexhaustible, fresh supply of waters entered the interior of the earth; and as it flowed along its innumerable passages, partook of the internal heat, like some hot-water heating system of planetary dimensions. But instead of continuing the former subterranean way, the liberated internal pressure now caused the waters to complete the remainder of their journey on the surface, in the form of two mighty rivers draining the Great Hot Lake, and liberating the life-giving heat over a smiling countryside.

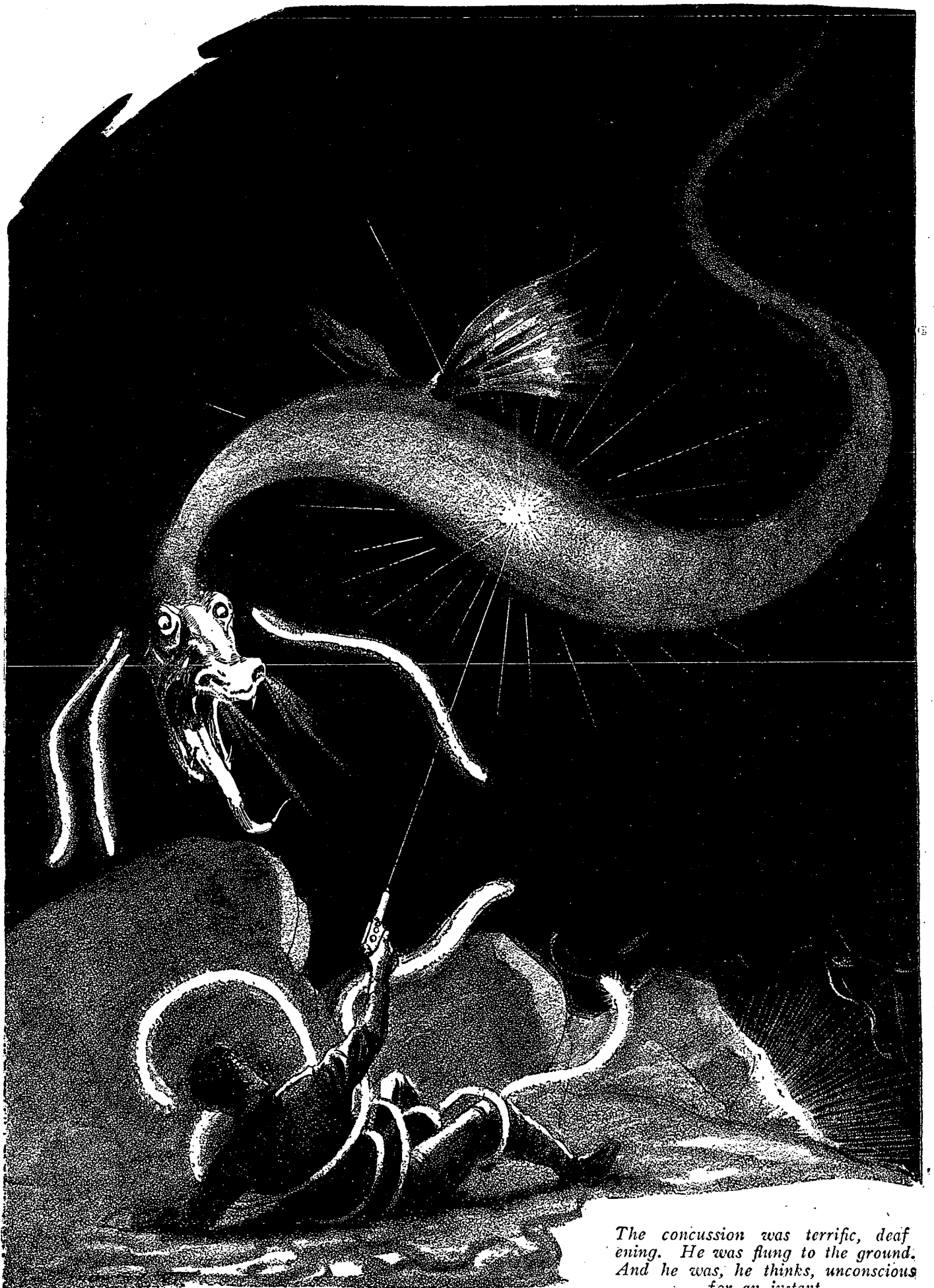
A vast area of the formerly frozen Antarctic Continent was now habitable, winter and summer alike. Over thousands of square miles balmy breezes blew, becoming almost tropical as one traveled close to the mighty streams of warm waters. And where the great rivers emptied into the sea, they formed a broad channel many miles wide, extending in a warm current through the icy waters of the Antarctic, providing a safe passage for water-borne commerce from the north.

In that great area, warmed by the twin rivers of warm water as they wound their stately course, and in the great area all around the Great Hot Lake, formerly the Great Geyser Basin, a new civilization had sprung up as if by magic; and was still swiftly growing. Green fields and growing things greeted the eye, where formerly was ice and desolation. Cities, villages, industries covered the land, connected by numerous broad highways on land and by air.

For with the melting of the great ice cap, there was uncovered an extensive surface soil, as predicted by Benjamin Smith, rich with the life-giving fertility of a once abundant life which had existed there in some far-off age of warmth. Power was cheap and plentiful. In addition, the uncovered folds of the earth revealed incalculable stores of valuable materials of all kinds, waiting for the touch of man's hand.

A happy new commonwealth in the Continent of Antarctica took its place in the world, to the benefit and enrichment of all. And none in the new land are happier now than the man who conceived the great idea, and his loving wife.

THE END.



The concussion was terrific, deafening. He was flung to the ground. And he was, he thinks, unconscious for an instant.

Concluding a remarkable two-part serial of unique life and adventure on a far-off star.

Part II

The Stone from the Green Star

By Jack Williamson

Author of "The Metal Man," "The Green Girl," etc.

IT has been said often that we cannot conceive that which is outside of our experience. It might also be said, with equal truth, that everything that the mind can imagine is possible. But neither of these statements limits possibility, for things beyond our wildest conception may prevail outside our own sphere. Is it, therefore, logical to assume that all forms of intelligence are housed in the type of bodies that we know? In the following chapters our lyrical-prose writer concludes for us a breath-taking story of unique life and adventure that will be remembered for a long time as an example of science fiction.

Illustration by MOREY

What Went Before:

IN a little box of some unknown material, which mysteriously appears on his library table, the relator of this tale finds several hundred sheets of a thin, stiff, flexible material, on which is written, in the unmistakable script of his missing friend, Richard Smith, the following amazing story of his disappearance:

When Smith starts down the raised bridge or walk over the waist of a tanker, heavily laden with oil, he sees a sudden streak of luminosity. As he stops to stare in wonder, this pillar of azure radiance begins to spin, steadily increasing in brilliance, until it becomes a wondrous vortex of fire, of color. Then it explodes. He finds himself next on a huge table or platform in a vast, six-sided room. Soon he hears a soft, interrogative voice behind him. Turning suddenly around, he sees two persons—Midos Ken, an old, blind man—a scientist—and his beautiful daughter and assistant, Thon Ahrrora.

He is convinced, after several hours of conversation, that he was snatched from the present, two million years into the future, by means of a time machine, with which the scientist and his daughter hope to draw that substance which will rejuvenate the old and give to the young eternal youth.

Don Galeen, one of the many scouts sent in search of this substance, returns with the news that he has located it on the Green Star, but that it is apparently guarded by horrible creatures that almost defy conception by the human mind.

Garó Nark, fiendish Lord of the Dark Star, determined to get Thon Ahrrora and the secret of this much sought after substance, overhears Don Galeen's report, kidnaps Don Galeen and takes him to the Dark Star. The other three—Midos Ken, his daughter and Dick Smith—decide to engage passage to the Dark Star for themselves and for the smaller space ship *Thon Ahrrora*, originally built for a trip to the Green Star. They stop en route and devote their efforts to rescue Don Galeen.

Thon goes to the castle of Garó Nark herself, disguised; she gains access to Don Galeen's cell, but is betrayed by one of the guards, and is imprisoned too. Midos Ken and Dick Smith go to the throne room of Garó Nark to demand the release of the two captives.

CHAPTER VIII (Continued)

S UDDENLY he heard a low, humming note from the pocket of his garment. The signal to call him to the television device. A message from Thon, at last.

He snatched the little black disk from his pocket, and held it before his face.

It had lighted. There was a tiny picture upon it, a bright miniature. It showed a cramped little room, with gray, metal walls. Low, metal ceiling. A poor bunk in a corner. A narrow window, high, heavily barred. Evidently a prison cell.

Thon was facing him, in the tiny vignette. Apparently unharmed, though she looked anxious and exhausted. Beside her was Don Galeen. Dick could see only part of the mighty body, still clad in the soft buff leather garment, ornamented with the blue shells. Don seemed to be holding some weapon in his hand, guarding them, though it was out of Dick's range of vision.

"Hello, Dick, dear," Thon's voice came to him from the little disk. The volume of sound was small, but he

could understand without difficulty holding the disk about a foot from his face.

"We have been besieged in this cell for hours. I did not call you up before, because your answer would have betrayed the location of the flier. But now, that you are here in the palace, it can do no harm. You see, my instrument has a directional device, so I can tell where yours is located. I called when I found you were here in the palace."

Dick looked up quickly, glanced about the magnificent room.

Silence had fallen. All eyes were upon him, but no one else could see the disk. And the volume of the sound directed up toward him was so slight that no one else—except Midos Ken, with his keen hearing—was able to distinguish the tones of Thon.

Pelug, scrawny and green-eyed, was standing up to whisper something to Garo Nark, who listened with head inclined, frowning malevolently.

"Where are you?" Dick whispered swiftly into the television disk. "And what can we do to help?"

"Don and I are together in a cell—a cell cut in the living rock beneath the palace. I came here to let him out. We were betrayed, and attacked. We are surrounded here. My weapons are deadly enough so that we have been able to stand them off. But we can't escape!"

"Tell me how to get down there!" Dick cried, in low tones.

"There's an open elevator shaft at the wall behind Nark's purple throne—an air elevator like those on the liner. Get off at the level numbered 17. Go down the corridor. Take the second passage to the right; we are in the ninth cell.

"But don't risk your life, Dick, dear. If you and father aren't prisoners, go on and leave us! There is no chance that all of us can get away, out of the very palace! Father's science, and his great discovery must not be lost, just in attempting to save us. Leave us to sell our lives as dearly——"

The crash of an explosion came through the disk, reduced to a sound no louder than the snapping of a twig. There was a flash of greenish light, so bright that it obscured the tiny picture. As it faded, Dick had a glimpse of Thon springing back in alarm.

Then the disk went black. He put it to his ear, but the humming stopped, and he heard no sound.

"Ape of the past," Garo Nark addressed him jeeringly, "you will see no more, I think. My men have put a stop to that. You will see nothing more until the disk lights again, to show you what is happening to those two.

"No, you need not fear that they will fall into the hands of rough soldiers. My surgeons will take charge of them. Very skilful men, those surgeons of mine. They will be careful that the two do not die—too soon!"

An ugly laugh, gloating, mocking, rang from the purple throne. And scraggy, green-eyed Pelug echoed the laugh of his master with a ghastly, triumphant chuckle.

"Now!" Garo Nark's order cracked like a whip.

Dick had not heard the invisible men gathering about them.

But, as the sharp order rang out, he heard footsteps all about him, rushing forward. He and Midos Ken were surrounded with a ring of Nark's invisible men!

Throbbing violet rays blinded him. They were at the focus of a score of converging El Rays, thrown suddenly on them from all directions.

But they still wore the little metal devices upon their wrists, to charge their bodies with the protective electronic force. Though dazzling, painfully bright, the El Rays were harmless.

"So you are breaking the truce, Nark?" old Midos Ken asked in a calm voice, which carried an ironical note of pained surprise. "The ruler of a mighty planet cannot keep his word to an old blind man? Well, this releases me from my pledge. You must take the consequences!"

Before the old man had finished speaking, a score of invisible men had flung themselves bodily upon them. Dick felt heavy, unseen hands snatching at him. He tried to strike with his fists, only to have his arms caught in the grasp of many fingers.

But old Midos Ken was not disturbed.

A queer change had come suddenly over his body. It was bathed in rosy flame. A rose-colored mist of pale fire had appeared abruptly, clothing his erect old body in a luminous *aura*.

And that glow of rose-pink radiance seemed fatal to all who touched it. The air about him was filled with screams and groans, as the invisible fighters, rushing up to seize him, were hurled backward to the floor as if they had touched a powerful electric eel or ray.

At Garo Nark's cry of "Now!" the long lines of black-garbed men along the walls had rushed forward, raising their long jet tubes, in which violet lights were flashing. They were already half across the room.

To Dick, still struggling with the invisible men who had seized him, it seemed that they must be overwhelmed by sheer weight of numbers. Garo Nark, on his purple throne, was leering with malevolent satisfaction.

But still the old blind scientist stood alone, mantled in a mist of rosy flame. The weapons of his attackers could not harm him. They could not lay their hands upon him.

Then he raised in a gnarled old hand the little cylinder of topaz-yellow crystal that Dick had seen him use once before, to strike down their invisible assailant as they were escaping from the liner. It was the projector of an actinic ray, Thon told him afterward, which caused a slight change in the chemical composition of the neurone fibers of the nervous system, resulting in instant paralysis and death.

Guided apparently by his marvelous sense of hearing; he swept this little cylinder of smoky yellow crystal in a slow, deliberate arc.

The men in black fell before the invisible ray from the tiny weapon. Their dead bodies, queerly stiffened, grasping the El Ray tubes in frozen hands, toppled over like a row of wooden men. They lay in rigid, grotesque attitudes upon the glistening golden floor. It was terrible, appalling.

The little topaz-yellow cylinder made no sound, as the blind scientist, his body bathed in the shimmering rosy light, slowly swung it about. Nothing visible came from it. But the men were smitten with swift, invisible death.

There was no look of triumph on the calm, blind face of Midos Ken. His impassive features were set in a sober, determined expression, almost sad, Dick thought.

The deliberate sweep of the unseen ray was toward the throne of Garo Nark. Fiercely exultant, Dick expected to see him topple off his purple throne, his body frozen in the swift death. But Pelug, the scraggy, green-eyed man beside the throne, after a moment of consternation, flung down a lever beside him.

A SECTION of the golden floor dropped suddenly, carrying down with it the magnificent throne of gleaming purple crystal, with Garo Nark and Pelug. They flashed down out of sight in an instant. There was a heavy, metallic clang. And a great sliding valve or cover had moved into place, closing the hole through which they had dropped.

Dick glimpsed that sudden and unexpected retreat of the Lord of the Dark Star through the floor of his palace. Then he turned his attention to the unseen men who were striving to hold him.

He kicked out with all his force. He could see nothing there, but his foot struck yielding flesh. There was an explosive grunt, from the unseen man whose body he had struck.

Then Midos Ken, whose remarkable hearing was almost a second sense of sight, reached out an arm that glowed with rosy fire. Evidently he touched the man who had grunted. The grasp on Dick's left wrist was abruptly released, and an invisible body fell against his feet.

Seizing his advantage, he twisted his right hand free, with sudden fierce effort. A moment later he had swung a blow with all his force at the point that, he thought, should be occupied by the head of the invisible man from whom he had just twisted free. His fist seemed to strike a jaw. There was a sickening crunch, a rush of air escaping from contracting lungs, and the dead thud as an inert body struck the metal floor.

If there were more invisible men, they thought it time to follow Garo Nark in retreat.

The great hall was suddenly silent. Dick and Midos Ken stood alone, near the center of it. Between them and the walls lay the stiff, grotesque bodies of hundreds of the black, visible guards who had died by the actinic ray. The few survivors had just rushed in mad retreat through the high arched portal of the hall, many hundred feet away.

They were the only living men visible in the room.

Old Midos Ken reached a hand inside his garment, apparently to touch some mechanism fastened against his skin. The roseate glow died swiftly from about his body. In a moment it was gone. He put out a hand, touched Dick's shoulder.

"A charge of high-tension electric energy," he explained briefly. "Fatal to anyone who receives it suddenly, though the charge, if slowly built up, is harmless. Certain animals have the power of killing with electricity, you know."

"Now we will try to find Thon?" Dick suggested quickly.

"Yes. We must be quick. Garo Nark is defeated, perhaps, but not vanquished. He will soon appear with some new weapons!"

Dick was already leading the way rapidly across to the rear of the great, magnificent hall, toward the spot where Thon had told him to look for the elevator. He held Midos Ken's arm, but the old man seemed hardly to need guidance. He appeared almost to see with his ears, by noting the quality of sound-reflection, or echo, from objects about him.

They reached the elevator shaft—a round open well, three feet across, black and bottomless. A current of air was rushing out of it, rising in a twin shaft beside it.

Without hesitation, Dick stepped off the edge. As he fell gently through the dark shaft, he repeated Thon's instructions for reaching her.

"Get off at the level numbered 17," she had said. "Down the corridor. Take the second passage to the right. And we are in the ninth cell."

The luminous numbers were flashing past, with a railing below each, which one grasped if he wished to stop. Dick read them. Fifteen. Sixteen. Seventeen. He seized the handrail, swung himself out of the shaft to a stage. Midos Ken came past him in a moment. He snatched the old man's arm, pulled him out of the current of air.

They started down a narrow passage. Suddenly two guards in black were before them, glistening jet El Ray tubes held threateningly. Midos Ken must have heard some slight movement from them. He raised the smoky yellow crystal. The two fell dead and rigid.

They hurried on down the corridor, which was dimly lighted by a luminous, pale-yellow ceiling. Another tunnel opened on the right-hand side of the passage. They passed it, reached a second tunnel, turned.

Around the corner they came upon a group of men. There must have been fifty black-clad soldiers there, crowded in a few yards of the passage. Some were gathered about a curious device which looked a little like a telescope, and somewhat more like a machine gun. It was pointed on down the passage.

Beyond the men was a solid wall of darkness—the edge of a cloud of utter blackness formed by one of the ether-exhausting bombs.

At once the reason for the darkening of the television disk flashed upon Dick. Thon had been forced to use one of the bombs of darkness to protect herself and Don. And the wall of blackness—a literal hole in the ether—had cut off the television rays.

Again Midos Ken used his little topaz cylinder. The men in the passage fell before it. They were piled in grotesque heaps about the strange weapon, which in the last instant of their lives they had tried to turn in the direction of Dick and the blind man.

Again they went forward, stumbling over scattered weapons and the stiff forms of the dead, until they reached the wall of darkness. Midos Ken called out. A glad shout, from Don Galeen, answered him. They stepped into the cloud of absolute obscurity.

Dick felt his way along the wall, counting the doors they passed. In a moment, Midos Ken, at home in the darkness, was leading the way.

Then a soft, questing hand touched Dick's shoulder. With a little glad cry, Thon threw herself into his arms. He pressed her eagerly to him. He could not see her. But her body felt pliant and strong, warm and throbbing with vitality. He thrilled at the contact.

Passionately, he held her body against his. He bent, seeking her lips with his. His lips brushed her fragrant hair, her smooth brow, her soft, warm cheek. A sort of ecstasy filled him when his lips touched hers.

A storm of emotions and thoughts whirled through his mind. Delight this was, sheer, thrilling! A man might give a lifetime for a moment of such embrace! What if they lost, yet? What a tragedy if Garo Nark should still seize this wonderful being for his foul uses?

"Thon! My wonderful Thon!" he murmured. "I can't leave you!"

Then he heard the bluff, cheerful voice of Don Galeen, addressing Midos Ken.

"Glad you happened along," he was saying. "They were trying all sorts of weapons on us, and we were about ready to blow up the palace and quit!"

His tone was almost casual. Such fantastic struggles seemed a matter of course to him, the hero of a thousand adventures. And this was the man Thon loved, not himself, Dick thought. Her pleasure at seeing a friend, and her natural relief at their coming, had led her to the impulsive embrace. And he had presumed upon her!

"Forgive me!" he muttered, dropping his arms from about her. "I'm sorry!"

"Sorry for what?" she asked innocently.

So she did not understand. She had thought nothing of it. Faint relief lessened his angry gloom. An embrace meant nothing to her, he thought. She had accepted it merely as a casual salutation.

"Let's be getting out of here," Don Galeen proposed. "If you, Midos Ken, have weapons enough to keep them off us out in the open."

"We must try it," the old scientist agreed. "The best plan, I think, is to use an ether-exhausting bomb large enough to throw the whole city into darkness. Then their invisible men will have no advantage. With my hearing, I think I can guide us safely out."

"Good!" Don Galeen agreed.

A FEW moments later, Dick heard the tinkling crash as Midos Ken shattered the bomb of darkness upon the floor.

Then they filed out and down the passage, with the old man in the lead. Thon walked ahead of Dick, and Don Galeen brought up the rear. Utter darkness walled them in, rayless, absolute. It is hard for the ordinary person to understand what such darkness means, Dick says. Even on the darkest night, there is relatively a good deal of light. There is some light in the darkest room, in the gloomiest underground chamber—from radioactivity, if from no other source. But in that Stygian blackness, there was not the slightest glimmer of light at all.

Midos Ken, guided by his marvelous hearing, led the way back to the elevator shaft. They stepped out into the ray which cut off the planet's gravitational pull. The uprushing current of air swept them back to the floor of the great hall, where they were set down gently beside the shaft.

Then, as silently as possible, they ran down the length of the hall. They were in considerable danger.

"No ray weapons can be used now," Midos Ken had warned them as they left the cell. "Even the electric force that killed those who attacked me in the hall will now be valueless. For all these depend upon vibrations in the ether. And the ether has been exhausted from about us by the bomb."

"Your weapon, Dick, would still operate. But since you cannot see your mark, it might be so near that the explosion of what you hit would knock us down, as it did you."

"So, if we run into Garo Nark's men, there is nothing to keep them from overpowering us by mere force of numbers. The only advantage we have is that I am used to utter darkness, and can guide you others through it—while Nark and his men must be stumbling blindly about."

To Dick, the progress of their escape was an endless turmoil of confusion, a sort of nightmare. He could see nothing. He had no idea in which direction they were going. He could only stumble on and on, led by Thon's hand on his arm.

There was a time—he supposes they were outside in

the streets of the city, if Nuvon, the capital of Garo Nark, had streets—when they heard voices. A party, apparently, was searching for them in the darkness.

They stood still, and waited silently until the searchers were gone.

And another party stumbled into them. They stood as still as possible. A man blundered into Dick, gasped with astonishment. Dick was alert, ready, having felt the man as he first brushed against him. He got his hands on the neck of the unfortunate searcher before he had recovered enough from his surprise to call for aid.

He throttled that man without making sound enough to rouse the attention of his fellows, without letting him cry out. Later he wondered how he did it, how he found the strength and the ferocity. Was he, as Garo Nark had taunted him with being, an apeman from the past, stronger than the average man of this age? He supposed so, since his time was two million years nearer the jungle.

They came upon an empty flier, it seems, in the outskirts of the city. It had been abandoned. Dick had high hopes of reaching the *Ahrora* in it, until Midos Ken reminded him that no mechanism using etheric vibrations as energy could operate in this space from which the ether was exhausted.

But that was not wholly a disadvantage, since their enemies were also forced to keep to the ground. In fact, it would appear that the fliers which happened to be in the air when the ether was exhausted must have crashed down with their crews.

Though they had no way to measure time, it must have taken several days to reach the *Ahrora*. Dick marveled at Midos Ken's ability to guide them in the right direction, to warn them of danger. Five times they entered buildings, to find food and water. But they did not sleep.

To Dick it was all a nightmare, relieved only by the calm, sure courage of Midos Ken, the daring and the boundless good humor of Don Galeen, and the hope, and confidence, and sweetness of Thon Ahrora.

Many times Dick felt too weary and hopeless to go on. On each such occasion, old Midos Ken held under his nostrils a bit of the substance from which the pungent, invigorating vapor rose. The drug restored his strength and courage; he was able to keep up the struggle.

At some time during these days, Thon told him of the adventures that had led her to the cell with Don Galeen, where they had found her. About twenty-four hours after she had left the *Ahrora*, she walked into the inhabited areas of the planet.

The first person she met, it seems, was an old gardener or forester, caring for groves of trees which grew on the outskirts of the settled belt of the planet. To him she represented herself as a wealthy citizen of Garo Nark's empire, a favorite of one of the governors of the pirate planet. Dick could hardly imagine Thon, innocent and ingenuous as she was, assuming such a role.

But she was successful. The old forester believed her story and accepted the generous bribe she gave him to assist her. She told him she wanted to reach a friend of hers imprisoned in Garo Nark's dungeons. He took her to the city of Nuvon, and after exacting an additional bribe, introduced to her a kinsman of his who was one of the palace guards.

By this time, by listening to casual gossip of the court, she had heard about Don Galeen, the interplanetary adventurer, whom Garo Nark had captured on another

planet. He was in the palace dungeons, she heard, soon to be tortured to make him reveal the location of some wonderful treasure he had discovered in space.

Cautious inquiry, and a few more of the diamond tokens, brought her knowledge of the location of Don's cell. Another generous bribe overcame the scruples of the palace guard against conducting her to the cell. But after he had left Thon in front of Don Galeen's cell, her guide betrayed her, raising the alarm—perhaps in the hope of another reward, from Garo Nark.

By the time the guards arrived, Thon had cut the cell door open with her El Ray. With her weapons she was able to stand off the guards. But she and Don were unable to leave the cell, without meeting forces they could not face.

Thus they had been at bay when Dick and Midos Ken had found them.

DICK will never forget the relief he felt when they arrived at the *Ahrora*. For hours before, they had been stumbling through the snow, over the rugged floor of the canyon. The cold had not been painful, for cold is merely the absence of heat, and the space about them, from which the ether had been exhausted, was as opaque to heat as to light. Thus the warmth of their bodies had not been radiated and lost.

But those last hours had been hours of hell, of torture, of blind, endless effort—hours of pain. They were hours when it took every ounce of his will to take each stumbling step. Hours when he seemed alone in a universe of night, and the voices of his companions came from other far universes.

Then they felt the ship. It had not been molested—Midos Ken had seen to it that it would not be, by setting automatic weapons to bring down any man or ship that ventured near it. Even without such protection, the ship would probably have been safe—it would have been impossible for any power of Garo Nark's to break her neutronium armor.

Midos Ken voiced a series of low, humming notes to open the combination lock. He flung open the heavy door. Dick had just consciousness left to realize that they were safe at last, and to stumble into his stateroom. He threw himself down on his berth, his ragged garments still clinging to his weary body, and slept the sleep of exhaustion.

Garo Nark's men found the *Ahrora* before the darkness left. There was nothing they could do, however, save wait outside, or hammer in vain on the neutronium hull of the flier. The etherless space was shelter against all electromagnetic weapons.

When Dick woke from a long, dreamless sleep, feeling refreshed, though his muscles were still a bit stiff, the darkness was still about them, a pall of utter midnight. He was still lying in his berth when light came back. The green, luminous walls of the little cabin burst suddenly into view, with a brilliance that, at first, was blinding and painful to his eyes.

At once, he sprang up, and ran from his room along the corridor to the domed bridge-room. Swinging open one of the shutters over the crystal observation windows, he saw the dark mountains about them once more, with the strange stars above, and the dim glow of light in the south, above the cities of the planet.

About the ship were hundreds of men. He could see them by flares they were lighting, and in the glare of searchlights that were turned upon the flier. Near them

was a strange machine, looking a little like a huge searchlight, Dick says, but probably a weapon erected to be ready for use when the ether should return. A group of men were busy about it.

Then Thon came bounding into the control room.

"Quick, the lever!" she cried.

Before Dick had had time to move, her fingers were upon the little control lever, with its white accelerator button. Upward they flashed from the surface of the planet. When Dick looked for it a few minutes later, the Dark Star was but a tiny speck of light lost in the hosts of the unfamiliar firmament.

"How are you?" the girl asked solicitously.

"Oh, I'll be good enough after a bath and a shave and some clean clothes and a little breakfast," he said, grinning. "And how are you? You seem to have enjoyed most of those things already—except of course, the shave!"

For Thon Ahrora was beautiful, her lithe body clean and glowing from a bath, clad in a garment of the brilliantly blue silk which was her favorite.

"Yes, I got up when it was still dark," she was saying, when Midos Ken and Don Galeen came up to the bridge. The two of them had slept in the larger stateroom of the old scientist, Don occupying an extra berth.

Don Galeen, tanned and powerful, clad in his soft brown leathern garment, seemed unaffected by their terrible journey back to the flier. His weather-beaten face glowed with smiling good humor. He greeted Thon with such unfeigned and unhidden admiration that Dick, to hide his jealousy, hurried out, on the pretext of making himself presentable again.

It was an hour later when he returned to the bridge, shaved, washed, and freshly clad.

He found Thon conferring with her father, and making intricate computations on a huge sheet of that white material used as paper. Don Galeen was looking on, evidently supplying information and suggestions.

"We are plotting our course for the Green Star," Thon told him. "Don is helping make a map of that part of the universe in which it lies.

"So we are off for the Green Star, now?"

"We are already driving toward it with the full power of the generators," Midos Ken told him.

"How soon should we get there?"

"It is well over fifty thousand light years—it should take over one hundred days, perhaps four months."

Thon, Dick, and Don Galeen were to stand regular watches of four hours each. On Dick's first watch, a few hours later, he fell to observing the Dark Star through the ship's telescopic instruments. At first the faint speck of light that was the pirate planet slowly grew more indistinct, as they drew away from it. But presently it seemed to lose no more in brilliance.

"Something must have happened to the generators," Dick muttered. "We aren't leaving it as we should!"

A few minutes later, a little disturbed, he called Midos Ken into the bridge.

"I've been watching the Dark Star," he said. "And it doesn't seem to be getting fainter as it should. Can there be something wrong—"

"The Dark Star still in sight?" the old man was astonished.

"It is."

"Then Garo Nark has beaten us again!"

Surprise and dazed apprehension in his manner, Midos Ken called Thon. She looked at the Dark Star,

still visible in the instrument and growing no fainter, and consulted her charts.

"Yes, Dad," she said at length. "The Dark Star is following us."

"The Dark Star is following us!"

Dick shouted the words, in incredulous amazement.

"Following us? What do you mean?"

"The planet is moving behind us," Thon told him.

"Garo Nark's scientists must have developed K-ray generators powerful enough to move their planet like a ship," Midos Ken added. "It has been known, for ages, of course, that the energy of atoms is powerful enough to swing planets from their orbits. But never before has it been done in practice—no K-ray generators large enough to accomplish such a feat have ever been built—or had been built, rather, until Garo Nark built them!"

"The Lord of the Dark Star wishes to seize the fruits of our work for his own evil ends, of course. He wants the secret of life; wants endless youth for himself and his favorites.

"He would rob humanity of the secret of immortality for his own benefit!"

"He is following us! Following with a whole planet. Our best chance is to lose him, and beat him to the Green Star."

CHAPTER IX

Fire of the Green Star

LONG days went by, endless and monotonous. The *Ahrora* was flashing through intersellar space with her generators developing their utmost power. The little white cylinder of the accelerator was kept locked down. Thon, Don Galeen, and Dick stood watch after watch, as the little flier hurtled forward.

Faint flecks of light appeared in the abyss of utter midnight before them and grew swiftly brighter, until they became dazzling stars, became flaming suns, flashed past, and dwindled behind them.

Directly behind them hung always a dim speck of light, invisible without the highest power of their telescopes. It was the Dark Star, a planet plunging after them in a titanic chase through space.

As soon as they had found that the pirate planet followed them, their direction of flight had been changed a little, so that it would not give a clue to the location of the Green Star. But the damage, Dick thought, had already been done. The planet must have been moving for several hours before they discovered it.

Thon and Don Galeen spent hours in the narrow generator room in the tail of the flier, nursing the throbbing apparatus, trying to make the generators deliver an extra ounce of power.

Midos Ken spent days in thought, trying he said, to devise some way of making their ship invisible as Garo Nark's fliers were. For it was evident that powerful telescopes upon the Dark Star must be following them. The ether-exhausting bombs would have met the need, but for the fact that they would stop the generators and make them helpless. Finally the old scientist had to admit that here was one problem that he could not solve.

For weeks that tremendous race continued. A planet plunging through interstellar space, headlong, in pursuit of a tiny ship! An empire of pirates pitted against three men and a girl!

Slowly the *Ahrora* drew ahead. The point of light that was the Dark Star dimmed slowly through the weeks. At last, five weeks after the astounding chase had begun, the image of the pursuer vanished from the screen.

For two weeks more, for the sake of safety, the little flier was kept on the same course. Then the direction of the hurtling flight was changed.

They drove straight for the Green Star.

Don Galeen provided most of the entertainment for his companions during the interminable months of the voyage. Ordinarily he was not a great talker. But his life had been one long adventure, on many planets—he had even been born on a K-ray liner, flashing from sun to sun. And he told long stories, for the edification of Dick and Thon and Midos Ken. Stories of voyages with his father, who had been owner of a small K-ray flier trading among the planets of several suns. Stories of the mutineers who had killed his father and captured the ship, forcing Don, then about twelve years old, to become a member of their crew. Stories of his life upon the jungle-ridden inner planet of Sirius, where he had been a driver of monstrous beasts of burden, and had learned to smoke the *tian*—the malodorous drug which he still used frequently, sitting in front of the intake fan of the ventilating apparatus, to keep the fumes from asphyxiating the others. Stories of other long years of adventure, of the search for the lost K-ray liner, of the ill-fated attempt to smuggle escaping prisoners from the Dark Star.

Several times he told them again of his quest for the catalyst of life, of the discovery of the Green Star, of the strange green fire that shone from its barren hills and its desolate wastes of snow, of the horrors that he had met upon that weird world, of the cones of blue flame that were its cities, and of the alien and indescribable entities that ruled it, guarding the catalyst.

But Don Galeen seemed reluctant to talk about it. Horror seemed to fill him at the very thought of what he had experienced there—though he was always glad enough to tell of hair-raising adventures on other worlds. Always he hastened through his story, telling them that the Green Star and its beings were so far beyond human experience as to be indescribable in terms of human thought. He hastened to finish his story, and fall into the drugged forgetfulness of the *tian*.

By this time Dick realized fully that he was in love with Thon. His heart leapt at sight of her in the bridge-room—cool and lovely in her shimmering blue garment, body strong and softly curved, skin smooth and aglow with health, wavy hair falling in a glistening cascade of brown and ruddy golden gleams to her white shoulders, her keen blue eyes alight with humor and the zest of living. He thrilled deliciously at the contact when he brushed past her in the narrow corridor. When he slept he had dreams of her—dreams so vivid that they disturbed his waking hours.

Several times he was on the point of telling her what he felt. But the old inhibitions of his own age clung to him. He had a sense of his ignorance of the culture of this marvelous universe, even of an intellectual inferiority to Thon. There had been two million years of human evolution since he was born, he thought. Did he seem to these people, as Garo Nark had taunted him with being, an ape? True, he could see only slight physical differences; but he could not be sure.

And Thon and Don Galeen seemed to be closest

friends. Dick had seen the admiration in the rugged adventurer's eyes when he looked at the lovely girl; he knew that Don fairly worshiped her. And Thon, having known the rugged fellow since her childhood, seemed to return his devotion with warmest affection.

Dick said nothing of his love. His mental state was far from tranquil. But being a normal young man, he kept in robust health, with an excellent appetite.

At her hurtling pace, the *Ahrora* carried them swiftly beyond the limits of the galactic stellar system. The Milky Way was no longer a great circle about the hollow celestial sphere—it became a broad bar of misty white behind them. Ever the midnight curtain before them was studded with fewer stars. The strange constellations widened, brightened, flashed past as flaming suns, and left black and empty space before the plunging ship.

A HUNDRED days after they had left the Dark Star a bright speck of light flashed past them which, Don said, was Zulon, the outlying sun, from which he had set out on his search for the catalyst. Before them were only a few stars, far-scattered, speckling the inconceivable vastness of extra-galactic space.

They were plunging from the crowded star-streams of the galactic system, out into the frozen, empty void of space—the space between universes, trackless, desolate, dark beyond conception.

Two days later they darted near the strange red sun of which Don had told them, the red sun encircled with rings of sapphire blue, and on, past it, toward a great binary star.

It was a week later when they plunged through the net of planets of that vast, far-off solar system that Don had explored, finding the colossal ruins of a dead civilization on one world, and teeming, savage jungle life on others.

On they flashed, toward the weird Green Star, which swam unseen in the illimitable, midnight void beyond.

Again and again, with the most powerful of their instruments, they searched the sky behind them, where the Galaxy was a broad bar of silver light, seeming to be set with tiny glittering brilliants—searched for the Dark Star, the planet that was plunging in mad flight after them. They did not see it.

But Dick was uneasy. They had started directly for the Green Star, before they had known they were followed. The invisible agents of Garo Nark, spying upon them back at Bardon, on the earth, had probably heard Don Galeen's story of his voyage, of the stars he had passed which served as landmarks.

Even if they had outrun Garo Nark, might he not be able to find the Green Star?

Two days after they had left the great blue sun, with its many spinning worlds, a tiny speck of green radiance became visible in the black abyss before them. A tiny point of green that grew slowly brighter.

The Green Star!

It grew as the hours went by. It expanded to a tiny globe, a sphere of frozen emerald light. And the green sphere swelled. They could see long ranges of barren, rugged hills—glowing as if cut from darkest jade. They saw immense, desolate wastes of snow—shimmering with dim green light like dust of beryl.

And on a high, mountain plateau, almost at the north pole of this weird planet, strange blue light was gleaming. Cones of blue flame seemed to rise from the rugged mountain tops.

Don Galeen seemed queerly affected. His brown eyes, usually so alight with humor or flashing with dauntless courage, were wide and, strange, filled with nameless horror. His mighty muscles were tensed, as if in a silent battle with terror. His breath came in quick, short gasps.

"Those cones of blue light!" he whispered hoarsely. "They are the homes—the cities of the things! Things I cannot describe! There is horror in them. Horror that I am not anxious to face again. We must land far away, and study them before we go near."

Nervously he fumbled for the black wooden cylinder in which he smoked the *tian*. Pity in her eyes, Thon helped him roll the little green pellet into it, and forbore to sniff at the reeking fumes that Don exhaled, as he sank back into the dreamy oblivion of the drug.

It was left for the others to choose the landing place.

"It must be somewhere," Dick suggested, "where we can remain hidden, while we learn something about the planet. And it should be as near as possible to the part inhabited by these monsters that are guarding the catalyst, so we can observe something of their habits."

"A very good plan," Midos Ken agreed.

"I see the very place!" Thon cried, looking at the telescope screen. "South of the high plateau where we see the cones of light, there is a vast, flat green desert—a plain covered with the luminous snow. And south of that plain is another range of hills. Let's land in those hills, with the desert between us and the cones of light."

The others agreed that the spot was well chosen. Thon brought the flier down in a swift dart toward a little ravine that opened upon the flat waste of snow. A few moments and they were upon the Green Star!

The *Ahrora* lay in a narrow canyon, a mere crack in the mountains. The rugged walls that rose dark about her gleamed faintly with green luminescence. She lay upon a bank of shimmering green snow that covered the bottom of the gorge. The snow was not brilliantly green; it was no brighter than snow on the earth beneath full moonlight. The sky above them was dark, filled with a dim greenish dusk.

They had hardly landed when Dick noticed a strange thing. Thon, standing near him in the control room, began to glow with faint green light. A luminous green mist seemed to gather about her skin, her hair, even her garments.

Other objects in the room, the instruments, were aglow with faint viridescence. A mist of emerald dust seemed to hang about the room. He put up his own hand, found it outlined in dim green flame.

"An extraordinarily penetrating radiation!" Thon was saying. "Or it could not enter through our neutronium walls. Even the cosmic ray could not affect us in here."

"This is damnably queer!" Dick broke out. "It looks like everything is afire. Even we!"

"It's easy enough to explain," the girl said. "This planet evidently has a core of some radioactive material, which emits radiations of short wavelength and very high penetrating power. Everything they strike phosphoresces under them, as zinc sulphide under the emanations of radium!"

Then it was that Dick was first conscious of the horror.

Suddenly it seemed to him that the green fire was cold, that it was chilling him. He trembled involuntarily, and drew his garment close against his body. Apprehensively, he looked at the little gauge on which

was recorded the temperature of the air inside the flier.

The tiny needle had not moved; the air was really as warm as ever.

But he shivered. Goose flesh roughened his skin. Icy lances of cold ran through him. A peculiarly unpleasant numbness came over his limbs; he felt a dull, throbbing ache in arms and legs, as if cold had penetrated to his very bones.

He felt as if he were rapidly freezing to death, even though the little thermometer told him the inside of the ship was as warm as ever.

Then a strange paralysis came over him.

"I'll jump up and down," he was muttering through lips that felt stiff with cold, numb and leather-like. "Slap arms against sides—that will—"

Abruptly it seemed as if an icy needle had been thrust through his throat. His voice died in a gasp. He tried to raise his arms, to flap them against his sides.

And he could not move them!

He could make his hands jerk, twitch slightly. But he could not lift them. Too cold to move, he thought. Frozen solid! But his eyes still moved. He looked at the little thermometer; still it had not changed.

Then came sensations still more unpleasant.

He felt that he was falling. His conscious mind still knew that he was standing in the bridge-room. But he had a sickening sense of plunging down headlong through infinite abysses of space, spinning dizzily as he fell. The nausea, the helplessness, the horror of it overcame him. He longed with all his mind for relief, even for the impact when he struck. But there was no crushing impact—it seemed that he was plunging down forever through illimitable voids of space.

Then another vision. He knew it was a dream, for he could see the familiar bridge-room still about him, and the little thermometer and the other instruments. He could see Thon standing near him, a peculiar grimace of horror frozen on her lovely face.

BUT all of that had become dim, shadowy, unreal. Thon was but a phantom. Even his body was a dead, stiff thing, standing there in the little control room. He was apart from it. The freezing cold still pierced him. And he still fell vertiginously, affected with nausea. He was outside his body, falling through giddy space, yet oddly he remained beside it.

It seemed to him that he was in another space, another dimension from the vague room and the dim shadow of Thon. He was falling through another space, falling dizzily and without end. It was a space filled with faint blue light, a sort of frigid, blue gloom.

And monsters writhed through that dusky azure light, slipping past him, clinging to him with hideous tentacles. Long, worm-like things, they were, slimy, cold to the touch as the frozen winds of Antarctica. Green writhing worms, many yards long, coiling horribly about him as he plunged down through unlimited abysses.

Huge green worms, that swam about him in that dim blue light, and stared at him with eyes that were red and utterly malignant, and hard and cold as frozen hearts of rubies.

Huge green worms, that wrapped him in their coils, clung to him with tentacles utterly cold—and fed upon him! They pressed loathsome mouths against him, sucked out the very essence of his being.

Ages seemed to pass. Ages of hellish torture. He felt himself plunging down through sickening immensities of

space. Through blue fire of cold inconceivable. Upon hideous monsters that stared at him through huge, malign orbs of frozen crimson, and fed upon his life.

But still he knew that it was only a sort of nightmare dream, for he could see the familiar room about him. But what good was it to know that it was but vision, when he could not move or speak or get aid to stop it?

Tormented ages passed.

Then he saw Don Galeen, who had been sunk in a seat by the wall since long before they had landed, deep in the drugged oblivion of his *tian*, move and struggle to his feet. Even he seemed half paralyzed. He walked like a man numbed with cold, or like one struggling through a solid wall of some invisible substance that impeded every motion.

Dick saw him get out the little cylinder of polished black wood, in which he smoked the drug. Patiently he watched the struggle to roll a little green pellet into it from the vial; he tried to forget his own agony, to watch and think of something else.

At last Don Galeen had the pellet in place, the cap over it. He put the tube to his lips, and drew. A moment more, and his movements seemed free again. The drug seemed to have given him relief from the horror that had frozen him.

Swiftly he strode to Thon, put an arm about her shoulders, forced the little black tube between her lips. Dick, watching with painful intentness, saw the slight heave of the breast that drew the first whiff of the vapor into her lungs. He saw the frozen mask of horror vanish from her face. Thon smiled in weary, grateful relief, inhaled eagerly through the black wooden tube.

She, Dick knew, had been suffering the same horror as himself. And the drug had given her freedom.

Suddenly she relaxed in the strong arms of Don Galeen, sunk in the dreamy stupor induced by the *tian*. Gently the mighty man lifted her, laid her tenderly where he had been lying.

Then Don hurried to Dick, put the end of the little cylinder between his lips. Dick struggled to inhale it, fighting the paralysis of his muscles with all the power of his will. At last a little of the pungent vapor came into his lungs.

The change in his sensations was marvelous.

The sense of falling stopped—he was once more in his body, standing firmly on the floor of the bridge. The dusky blue light, and the unthinkable monsters that swam through it troubled him no more. And a delicious sensation of warmth came over his body, sweet beyond understanding. The numbing pain of cold was gone.

With these feelings came a great sense of security, of freedom and relief. And a great weariness and desire for sleep.

Eagerly, as Thon had done, he inhaled the pungent vapors of the *tian*, and soon fell back into the drugged slumber it induced.

In his notes Dick has devoted a considerable amount of space to *tian*, and the physiological effects of its use. It is derived from the distillation of the kernels of a certain small shrub found originally on the inner planet of Sirius. It is a narcotic alkaloid, and seems to afford the habitual user much the same satisfaction as some alkaloids known in the present day; morphine, for example. The pleasure of its use seems to be even more intense. And its use is free, to a great extent at least, from the degenerative effects of the narcotics now known.

It seems to have induced marvelous dreams of de-

light and satisfaction. These dreams were remarkably detailed and vivid—so much so that the dreamer, upon awaking, recalled them almost as realities. They seem to have afforded gratification of all wishes, conscious or repressed.

Dick has given a detailed account of his own dreams on this occasion, attempting to account for them psychologically. Space forbids detailed quotations. It must suffice to say that at the moment of waking he thought himself married to Thon Ahrrora, and living with her in his mother's old house near Dallas, Texas.

HE woke, to find himself lying on his bunk, in the little stateroom he occupied in the flier. Midos Ken was just entering the room, holding a little instrument resembling an hypodermic needle.

"Hold out your arm," the old scientist said. "I'm going to give you an injection to protect you from the radiations of this planet."

"You mean you have something that will act like the *tian*?" Dick cried eagerly, as soon as he was wide enough awake to forget his dream of Thon and recall his recent terrible experience. "Something that will keep me from feeling that terrible cold, and the endless falling? Something that will keep off those monsters?" He shuddered at the recollection.

"Yes," Midos Ken assured him, "it will do all that. The planet must have a core of some unknown radioactive substance. Its emanations upset our bodies. The sensory nerves were somehow stimulated to give a sensation of cold that did not exist. It somehow induced that dream of falling, which is common enough. The vision of the monster, I did not understand—ar-r-r-r, they were hideous!"

The old man himself trembled, and whispered his last words through chattering teeth.

"Then you saw them, too?" Dick cried.

"I did. And so did Thon. We were helpless in that horror, as you were, until Don Galeen reached us with his *tian*. The alkaloid neutralized the effect of the radiations, and released us from the horror. I did not inhale the fumes as deeply as you and Thon did. I have been awake some time, preparing these injections. A radioactive salt, in solution, which, I hope, will give complete relief for several days.

"But those monsters! I don't understand why we should all see them. Dick, this planet is an alien world! There is nothing like it in our universe. It is a wanderer in space, from another universe! We are face to face with things beyond our understanding, things utterly weird and strange!"

"We have before us such a battle with the unknown as men have never fought before."

He stopped, and stood there in the tiny room, silent and thoughtful. Dick lay back on his berth, trying to absorb the astounding and terrifying import of the blind man's words.

Suddenly the old man stirred, thrust a gnarled hand into a pocket and brought out a little object which he handed to Dick. It resembled a pocket compass more than anything else. That is, it was a little metal case with a transparent cover, with a needle pivoted inside. A tiny red needle, swung on a very delicate pivot. Just below the pivot was a miniature parabolic mirror, with a coil of fine wire inside it, glowing with a red light.

"You see the red needle?" Midos Ken asked. "I cannot, of course. But notice which way it points."

Dick held the little case level on his palm. And the red needle swung slowly about, and pointed toward the north—or almost toward the north. It vibrated a little, like a compass needle, then held steady.

"It points toward the north," he said. Then he added, almost shouting in excitement, "It points toward those cones of blue fire we saw!"

"That is the detector which reveals the catalyst we are seeking," Midos Ken told him. "It points to the substance which will give immortal life to all humanity! The little instrument picks up and amplifies a slight radioactive emanation from the catalyst."

"Then we are near success!" Dick cried.

"Near success and near failure," the old man told him solemnly. "We are on an alien world from another universe. Here are powerful forces, tremendous potentialities for good and for evil. If we win, we will bring humanity the greatest boon conceivable.

"But we have roused forces—intelligences!—that we do not understand. If we fail, we may bring death—or some horror worse than death!—to all the planets of our universe.

"Those monsters that we dreamed of are not all dream! They are real! They are the guardians of the catalyst! And they are our enemies!"

In a few moments Thon came into the room, with a cheerful greeting to Dick. She seemed recovered from the horrible effects of the planet's sinister emanations. With a smile, she took the needle from her father, made Dick extend his arm, and injected something into it.

"Now Don won't have to share his precious *tian* with us!" she cried, laughing.

Dick did his best to be cheerful, and to answer her sallies in the same spirit. But he felt himself rather unsuccessful. He did not believe in premonitions. But he felt a shadow of doom upon them all.

The Green Star was simply not a normal environment for our kind of life at all. Every feature of it was alien, hostile, menacing. It was a world from another universe, where unfamiliar laws prevailed, and strange forms of intelligence held sway.

Presently they went to the little galley, where Don Galeen had set out for them a sumptuous repast of synthetic foods. But Dick had little appetite. Though Midos Ken's injections had driven the green luminosity from their bodies, the very dishes on the table, and the foods they ate were aglow with faint green fire.

THEY were in a weirder world than men had ever dreamed of. The uncanny strangeness and the alien horror of it were continually present; they were oppressive.

For many days they stayed there deep in the canyon.

Thon and Midos Ken were making scientific researches that Dick did not clearly understand. One of their objects was to analyze and determine the cause of the strange and sinister radiations that penetrated upward from beneath the crust of this planet, causing all objects that they struck to phosphoresce with the green light. There were other and more involved investigations relative to their dreams or visions of the monsters swimming in a haze of dim blue light.

"We are dealing with an utterly alien world," Midos Ken said several times. "There is sentience here—but sentience in no familiar body. We must be prepared to deal with manifestations of intelligence that are unfamiliar or even inconceivable to the human mind."

Not being qualified as an experimenter, Dick was pressed into lookout duty. He dressed himself in garments insulated against the bitter cold of this sunless world, and heated with atomic power. Every day he tramped down to the mouth of the narrow gorge in which they had landed the flier, and concealed himself to watch across the snow to the north.

He was to report any unusual phenomenon over a television disk he carried. His atomic pistol was at hand, for defense if he happened to be discovered.

Still he dreams of those long vigils, he says.

He lay on his face in the snow, in a crack between two boulders. He had raised a little wall of snow before him, for farther concealment. The boulders, and the mountain walls behind him, gleamed with a faint green light. And the vast desert of snow, stretching flat before him as far as his eye could reach, shimmered with soft emerald fire. An immense expanse of faintly glowing green snow it was, desolate and lonely, reaching away to the northern horizon.

There were no stars—and, of course, no moon or sun. The sky was dark, but faintly suffused with the green radiance of the snow. It was a green pall of gloom, dark and dusky.

For endless hours Dick stared across toward the north, across that waste of barren, glowing snow. He had a little lens, of variable magnifying power, which he used as a field glass or telescope.

It was three hundred miles and more, across that desolate waste of luminous snow, to the rugged mountain plateau where they had seen the strange cones of blue flame, which, Don Galeen said, were the "cities" of the alien inhabitants of this world. Due to the curvature of the planet's surface, those mountains were below Dick's horizon—not a single peak rose high enough to be visible.

But sometimes he could see a blue gleam in the dusky emerald sky above them. And sometimes there was a flicker of other colors, of moving shapes of light. Once he saw something reach up, that looked oddly like a hand of purple fire. It seemed to clutch something, and draw it down again.

And sometimes he saw tiny bright lights driving through the green gloom above the shimmering wastes of snow. High and swift, they hurtled in long, arched flights. He could only suppose them to be the lights of some flying machine.

All these things he reported to the others as soon as he observed them, speaking cautiously into the television disk. There was, so far as he knew, no good reason for whispering his words. But something in the alien weirdness of the world about him forbade him to raise his voice.

This lone, strange planet was far outside the streams and clusters of stars that make up the Galaxy. The sky was dark, with a depressing green darkness. No stars were in view. Above the wastes of snow was an empty void of gloom.

But, on the evening of his fourth "day" of watching—since the Green Star revolved about no sun, it had no actual days, of course—Dick saw a surprising thing as he was tramping back up the canyon to the flier, over banks of luminiferous, green snow.

He saw a star rise in the green-black sky, coming slowly up over a dully glowing, jade-green mountain wall. A star, where none had been before!

He ran through the snow to the flier. Thon opened

the massive door for him; he sprang into the gratefully warm interior of the ship.

"I see a star!" he cried. "A dim star has come up over the canyon wall! Can it be—"

"The Dark Star!" she finished for him, after a pause. Her face went a little white, but she kept any trace of panic from her voice. "Garo Nark has found us, after all!"

They hurried to the bridge-room; Thon called to her father and Don Galeen.

Hastily, they trained the instruments on the tiny speck of light rising so slowly into the green blackness of the sky.

"Yes, it is the Dark Star!" Midos Ken said presently. "Garo Nark has followed us here, with all the billions of his pirate empire, and the resources of his outlaw scientists. And here, outside the galactic universe, I suppose we shall play the game to the end."

Thon turned from a little device in which she had been following the motion of the new star; she seized a writing instrument and made a few brief calculations.

"The Dark Star is now following a regular orbit about this planet," she said. "The two of them will revolve about their common center of gravity like the components of a double star. The space between is several million miles, of course. But Nark's fliers can flash across it in a few hours!"

"We can expect visitors from the Dark Star!"

"What are we going to do about it?" Dick demanded.

"We can do no better than to stay here until our researches are finished," Midos Ken said, after a pause. "We are pretty well hidden; Nark is likely not to discover us."

CHAPTER X

The Thing of Frozen Flame

THIS chapter is exceedingly difficult to write intelligibly and convincingly. Dick covers the incident quite fully in his notes, of course. But the task of converting his rather rambling and disjointed discussion into concise, coherent narrative, always difficult, is made harder in this case by the nature of the material.

The difficulty, I suppose, lies in the natural limitation of the human mind. We think in terms of experience, recalling images of things we have seen, and that have been pictured to us. When one comes to deal with something quite outside human knowledge and human experience, it is very difficult to find terms with which to describe it. And the thing I must write of now is, from its nature, almost inconceivable to the human mind.

Even after weeks spent in the study of this section of Dick's manuscript, I am fairly sure that my own images of what he describes are not entirely accurate. For the sake of accuracy, I have ventured to introduce no new terms of my own. I have limited myself almost entirely to the use of Dick's phrases, merely editing them, and for the sake of brevity, omitting extraneous matter.

Many times, in the foregoing pages, I have been called upon to deal with strange and amazing things. But, for the most part, those astounding creations of the future are things that men have already dreamed of in our own day. The *idea* of travel through space, for example, is familiar enough, even if the fact is amazing; but now we must deal with something so new and strange that the very conception of it is hard to grasp.

About twelve hours after Dick had returned to the flier with his news of the Dark Star's coming, he replaced his heavy garments, and went down to the mouth of the canyon to watch again. He had slept and eaten well. The experiments in the flier seemed to be proceeding satisfactorily. The Dark Star, wheeling slowly across the sky, had set—without giving them any reason to fear that they had been seen. Dick set out in a cheerful, confident frame of mind, with the lilting notes of Thon's farewell ringing in his ears.

But no man could be cheerful long, under the gloom of that green-black, starless sky, in a world where mountains and deserts of snow glowed with ghostly fire. Dick felt oppressed with the strangeness of it; despite Midos Ken's injection, he felt a slight return of the horror that had seized him when they landed.

And he was beginning to suffer from a strange delusion or hallucination. It seemed to him that the very planet was alive! Beneath those weird luminous mountains, and those barren, lifeless wastes of snow, he thought he could sense an intelligence, hostile and malignant. He felt that unseen eyes were watching him.

But this, he thought, was merely a foolish idea. It came to him again as he tramped back through the strangely shining snow to his hiding place; and he tried resolutely to thrust it from his mind.

He reached his crevice between two boulders, repaired his little bulwark of snow, and lay down behind it, letting his eyes rove over the endless ocean of shimmering green snow to northward, stretching away desolate and dead to the black rim of the gloomy sky.

Hundreds of miles across that ocean of snow were the "cities" of the beings that ruled this planet. Those mountains, and the cones of blue flame they had seen upon them, were below the line of Dick's vision. Even the sky above them was dark; there were none of the moving lights he had seen before—not, at least, for several hours.

He lay there in his covert, waiting. Three times Thon called him on the television disk, having grown anxious about him. He assured her, each time, that he was safe—and prolonged the conversation until the demands of her experimental work called her away.

He had been there many hours when he first saw the thing.

First it was a tiny point of light. It drifted up from the point on the horizon where he knew the alien "city" was; it arched in swift flight above the rim of the green snow.

It did not drop from sight as others had done. It continued toward him, obliquely. It became a bright speck of fire, driving through the obscurity of the sky.

Dick watched for several minutes. First in interest and wonder—then with numbing fear, as it came nearer over the endless expanse of gleaming snow.

Suddenly he thought of the little telescope that Midos Ken had given him—it seemed to be no more than a pair of simple lenses, which could be adjusted to vary the power of magnification. Quickly he raised the little instrument, and adjusted it.

The thing must have been flying rapidly, but it was still so far away that he was able to keep it in focus with ease. And it was a thing so astounding, so alien, that he fell into a sort of paralysis of wonder and fear. He was so astounded that he quite forgot the little television disk in his hand, over which he should have reported the coming of the thing to Midos Ken.

The difficulty I mentioned above begins with the description of that thing. It was like nothing that has ever existed on earth; but Dick, in his notes, could describe it only in terms of earthly experience. We have only his description.

The body of it, he says, was like a worm or snake. It was slender, long and writhing. And transparent, or at least semitransparent. And it was green. The surface of it was glittering, somehow granular or crystalline and sparkling with green light. Dick says that a worm moulded of green, translucent jelly, and rolled in powdered emerald would present the same appearance—though that seems a rather clumsy comparison.

And green lights were pulsing through this transparent body, he says, like blood in a living animal. Its rhythm was, he says, like that of the blood in the translucent membrane of a frog's foot, seen through the microscope.

The thing had wings—or delicate structures that resembled wings. They were gauzy and transparent, glistening with cold iridescent lights. They were so delicate that they looked unreal like lacy webs of frozen rainbow. And they did not beat as the thing flew; they remained stiffly extended. The thing seemed to glide along.

There was a head or face of a sort. Two eyes, high at the upper corners, red and malignant. Their fire was strangely cold and malevolent. Dick found it unpleasant even to look at those scarlet orbs through the telescope.

Between the eyes and below them was a strange organ, a sort of flat disk of the green, semitransparent substance of the thing.

And on each side of the face was a bright oval spot that glowed with purple light.

THAT completes Dick's first physical description of the thing. He says himself that it is unsatisfactory, that it gives no real idea of the monster that he saw bearing down upon him. He adds comments.

The substance of it did not look exactly like real matter, it seems—not like the matter of our universe. It was bright, and luminous, and semitransparent, with strange colors pulsing through it. And it seems that it gave Dick the impression of being very *cold*—cold as the absolute zero.

Frozen flame is the best phrase Dick found to describe the body of that alien being. It had the brilliance of flame, in its glistening green body, and shining, malignant red eyes, in its shimmering iridescent wings, and the ovals of vivid purple at the sides of what Dick called a head. And the transparency of it, as well as other qualities more illusive, made it as different from any matter of our universe as flame is different from red-hot iron. It was real and substantial enough, however. And there was something about it that made it seem frigidly cold, colder than the frosty air of the sunless planet of its abode.

Dick refers to it subsequently as the Thing of Frozen Flame.

It was flying toward him very rapidly.

In a few minutes the image of it filled the lens through which he looked. It blurred suddenly, and he lowered the little telescope.

To his consternation and horror, the creature was no more than a mile away, flying swiftly toward him, above the shimmering ghostly desert of snow. Its brilliant

colors were very bright against the gloomy green-black dome of the sky.

He could see it very plainly, at that distance. The writhing snake-like body, green, glistening, and the motionless gauzy wings, glinting with flashes of cold iridescence. The red eyes were hard and cold and malignant as frozen rubies. There were strange, oval spots of purple light on the sides of its head.

Though it was moving very rapidly, the wings did not beat. Dick somehow got the impression that it moved through the agency of some invisible force. The frail wings seemed merely to guide it.

He knew that it had seen him, that it was coming toward him. Cold sweat of fear bathed his body. Horror claimed him for a moment; it took all his will to shake off the numbing paralysis.

He snatched up the little television disk.

"Something is coming toward me!" he gasped into it; when Thon's face appeared, nervously questioning, "It's seen me! It's coming after me! See!"

He held the disk a moment so that she could see the weird entity rushing down upon him at such appalling speed. Then he flung it aside, and sprang to his feet.

He started over the snow, back up the canyon toward the flier, running with stumbling steps. Despite his utmost efforts, it seemed that he could not exceed a snail's pace.

Panic overcame him. Wild fear surged through his mind. Heart pounding wildly, he bent forward and ran at the limit of his speed. And it seemed that he was hardly moving. He muttered curses, and breathless gasps of fear.

Then he stumbled over a boulder, and sprawled on his face in the luminous green snow.

He scrambled breathlessly to his feet, looking back. Some of his self-possession was restored.

"Damn fool, to lose my nerve and run like that!" he muttered. "If it gets me, I can die like a man, anyhow!"

Though he had run only a score of yards, the amazing being of frozen flame had covered fully half the distance between them. It was now not over a half a mile away. The frozen red eyes, glittering and cold, were fixed upon him in a bright, hypnotic stare.

Dick's atomic pistol was in a belt at his side. Now, with a quick, instinctive motion, he snatched it out, threw it up.

Trying to hold it on the incredible thing before him, he pressed the trigger as rapidly as he could. The weapon made no sound; there was no recoil. But a faint spark of purple fire seemed to leap from it with each stroke of the trigger.

His target was too far away, and moving too swiftly, to be an easy mark. Anyone who has practised with an automatic will realize the difficulty of hitting a comparatively small object, half a mile away and moving rapidly, with such a weapon. And Dick's atomic pistol, while its amazingly destructive projectiles carried many times farther than a pistol bullet, was no more accurate than an ordinary automatic.

He had little hope of scoring a hit with those first shots, except by a freak of luck. But he knew that his aim would be deadly within a hundred yards or so.

He did not get to try his skill, however, at such a range.

He had pressed the trigger hardly half a dozen times when a writhing, tentacular shape of luminosity was suddenly extended from one of the curious ovals of

purple light at the sides of the monster's head. A twisting bar of purple flame was thrust out.

And it became detached from the creature. A bar of misty luminosity, of frozen purple flame, floating free. It straightened, and came toward Dick in swift, arrowed flight.

A straight bar of cold, red-blue fire darted at him like a lance of flame hurled from the purple oval on the head of the Thing of Frozen Flame.

It struck him. And it seemed *alive*. Snake-like, it coiled about his body. A rope of cold purple fire, it wrapped itself about his feet, entwined his body, drew down his pistol arm.

It is hard for us to imagine it. A living rope of flame, thrown about a man from a distance of half a mile. Dick says it was some two inches in diameter, and several yards long—long enough to wrap itself about him several times. It was almost completely transparent—there was a bright, hard line of purple fire down the center, with a shining red-blue mist about it, brighter toward the core. And little pulsing fluctuations of brilliancy seemed to throb along it, as if it were an artery pulsing with blood of fire.

It is almost inconceivable to our minds that those weird beings of the Green Star should be able to separate such living matter from their bodies, and control the motions of it at great distances from them. The control of mind over material things is familiar enough to us. It is nothing amazing when a man's hand closes in response to a message from his brain. But, with us, a man's control over his hand ceases if that hand is severed from his body.

The Thing of Frozen Flame, as Dick called it, was of a different kind of matter from that found in our universe. And its mind—for it was intelligent, in an alien, dreadful sort of way—controlled the matter of its weird body. But that control, apparently, was not over physical nerves, but by the agency of some force, probably some form of etheric or electromagnetic vibration, that is independent of a material medium.

DICK'S rather lengthy speculations about the matter will appear in full in "A Vision of Futurity." Space does not permit me to go into this interesting question at greater length, here.

However it may have been done, the monster was able to hurl a part of itself at Dick, across a distance of half a mile, which it coiled around his body, holding him helpless until the weird being—or the rest of it—arrived.

As he waited, Dick's sensations were peculiarly unpleasant. He strained every muscle in his body in a furious attempt to break free of the thick rope of red-blue fire that held him. But it seemed to have the strength of steel. And there was alert intelligence in the way it took instant advantage of his every motion to entwine him more securely.

The thing was bitterly cold, inconceivably cold. Cold seemed to be part of its nature, as warmth is of the higher animals. Dick supposes that the strange substance of it is chemically stable only at temperatures near the absolute zero. The piercing, numbing cold of it penetrated his heavy garments; he shivered with its strange chill.

There was horror unutterable in waiting there. Alone. In a strange world, frozen and barren. A planet outside our universe, where the sky was black, and the rugged mountains and the barren wastes of snow shone with eldritch emerald light. He was held helpless by a rope

of pulsating purple flame. And bearing swiftly down upon him was an entity so strange, so inconceivable, that he found no better name for it than the Thing of Frozen Flame.

Dick trembled, shivering as much from ungovernable horror as from the intense, penetrating cold radiated from the luminous coils that bound him; he was breathing swiftly; his heart was pounding. And a cold sweat had broken out upon his body.

After his first wild and frenzied struggle, he realized that physical strength would avail him nothing against the terrible, *living* energy of the red-blue rope of fire entwined about him. He forced himself to relax his desperate, panic-stricken efforts to break loose. He tried to calm his dazed brain, to consider, to think.

His time was all too short. The amazing creature was not half a mile away, over the desolate plain of shimmering green snow. It was gliding down toward him at the speed of an airplane. He had no idea what its intentions were—but he knew that it was malignant, alien to humanity; and he was terribly afraid.

What was the chance of rescue? He thought of the *Ahrora*, the wonderful flier a few hundred yards behind him, with Midos Ken aboard, and Don Galeen—and Thon. And he was suddenly sorry that he had told them of this creature, over the television. What could they do against such a thing as this? He hoped that they remained hidden, that they made no attempt to save him.

The atomic pistol was still in his hand, held against his side by the luminous coils about him. He must cling to the weapon. He might have a chance to use it, if he were cautious. It was his only hope.

Then he relaxed completely. He dropped his head, let his eyes half close. His shoulders sagged. But he kept the muscles of his right arm tense, kept the weapon firmly grasped. The strange coils of purple fire about him supported his weight; they did not let him fall.

He dropped back, inert, relaxed. And he kept in such a position that he could watch the weird entity gliding so swiftly toward him.

Long, snake-like body, green and glittering. Slender wings glistening with iridescence, like wisps of frozen rainbow, like lace of diamond needles. Cold crimson eyes, lidless, unwinking, utterly alien and malignant. Strange ovals of purple light at the sides of its head—from one of them had come the rope of frigid fire that bound Dick so securely.

It glided swiftly toward him. The wings were motionless. It seemed to move by mere *will*, as the part of it that had come to seize Dick had moved. The mind of it seemed to move matter by forces unknown to us.

Dick recoiled from it, trembling with utter loathing, with horror that, he says, is inconceivable. Chills traversed his spine; icy sweat seemed to congeal upon his limbs. It took all his will to keep from making another mad struggle. But he waited, relaxed.

The thing reached him, it hovered over him, fifty yards high.

A winged serpent, green, semitransparent, shining, with glistening wings and malevolent red eyes, bright and luminous as crystal—as flame. And cold—inconceivably cold—a thing of frozen flame.

Abruptly, he was snatched up toward it.

The rope of purple fire lifted him in its frozen embrace, carried him toward that thing of nightmare hanging above.

Dick struck as it swung him off the earth. He moved

as swiftly as he could, trying to catch the monster unawares. The coils of fire about him had relaxed a bit. With a sudden twisting motion, he slipped his pistol arm from under the coil that held it, flung up the weapon, and fired at the glistening thing of cold fire above him.

The concussion was terrific, deafening. He was flung to the ground. And he was, he thinks, unconscious for an instant.

Then he was lying on snow that shone with pale cold green.

He was free. The rope of purple light was rapidly uncoiling from around his body.

And the thing he had fired at lay on the snow not far from him.

It was shattered.

The body of it was crushed. It lay scattered about the snow like great blobs of jelly, translucent and crystalline. The frail iridescent wings were shattered into a thousand prismatic fragments, glistening like diamonds. The red eyes were in a mangled fragment of the green body, half buried in the snow.

But the thing was not dead.

Dick saw the part that had been the head lift itself out of the snow, rise a few feet into the frozen, gloomy air. It hung there. At first it was a mangled, hideous thing. But swiftly it changed; it resumed its former appearance.

The strange, unwinking red eyes shone malignantly again.

And the rope of purple fire that had coiled about Dick writhed quickly toward the head, through the gleaming green snow. It leapt from the ground, toward one of those luminous violet patches at the sides of the head. It struck the oval, streamed swiftly into it, vanished.

The part of the monster that had come to bind Dick had returned to it.

And one by one the shattered parts of the body glowed with strange throbbing fire of life, lifted themselves from the ground and leapt up to it. Swiftly, all was put back together, as it had been before.

It was incredible, uncanny.

It was inconceivable to the human point of view, to the human mind familiar only with the life of this universe.

Dick stood staring at it, in dazed wonder, and horror.

He was uncertain what to do. If he tried to run away, he knew the creature would be complete, ready to pursue him again, before he had gone fifty yards. He thought of trying to blow it to pieces again. But he feared that the fragments might be about as dangerous as the entire being.

HE hoped that it would go away, and leave him alone.

Tense and alert, he stood there, staring at the alien entity that was so weirdly reassembling its shattered fragments. He kept the weapon on it.

At first his mind had been dazed with incredulity and horror. Now he was himself again. He could admit the reality of the monster. And it was not wholly invincible. He had blown it to pieces, and secured at least temporary freedom—even if the thing were putting itself together again.

"What do you say?" he called challengingly at it. "Want another dose?"

The thing was watching him. Those red eyes were inches across, deep and glowing with cold crimson fires.

Two feet of the glistening, translucent green substance of the thing separated them. They had no pupils, no lids. They did not wink. They were steady, bright, intensely malignant.

The stare was hypnotic.

Dick fought against it.

"Damn you!" he shouted. "I'll blow you to hell!"

His voice somehow died in an uncontrollable choking gasp.

He tried convulsively to pull the trigger of the pistol. His muscles were frozen; he could not move.

The horror that he had felt upon the landing came over him again. Bitter cold, numbing, torturing, all pierced him with icy needles. He felt again that vertiginous sensation of endless falling. Queer blue darkness seemed to come about him.

He felt the weapon drop from his nerveless hands.

Then he was lifted from the green snow. By some force he could not understand, he was wafted toward the glittering thing of frozen fire. Shining, rope-like tentacles of purple flame, intensely cold, streamed out of the violent ovals on its head. They coiled swiftly about him, drew him up to the monster.

He was held against that green, translucent, worm-like body.

Intense cold from it struck into him—bitter cold, numbing, freezing, piercing his body.

He tried in vain to struggle. His paralyzed muscles would not respond to his will. He felt that sickening sensation of plunging down through an illimitable abyss of cold, dim, blue light. And he felt oddly apart from his body—as if the amazing *will* of the creature had crowded out his mind, and taken its place.

His body, he knew, had somehow become a part of that alien being. Its muscles were controlled by that inconceivable intelligence, as the rope of purple fire that had bound him had been.

Then the strange, disk-like appendage on the thing's face, between the red eyes and below them, was pressed against his body. A broad disk of green, jelly-like substance, pulsing with lights that were the life, the blood, of it.

The tentacles of red-blue fire held him in their frozen grasp. And the green, viscid disk was pressed against his breast. Cold from it struck into him, numbing, gelid, bitter.

And the disk sucked. Something streamed out of him into it. It was not blood—it was the very *life* of his body.

Vampirism! The thing was sucking out the very essence of life. He felt shrunken, weak, exhausted. Suddenly he was feeble and old. He had no longer the strength to struggle against the paralysis that overcame him, against the freezing grasp that held him against the revolting, worm-like body of viscid, frozen jelly.

Suddenly it quivered. He felt a shock of *alarm* run through it. The inconceivable mind of it seemed shocked, dismayed.

It dropped him on the green snow.

He lay there, too weak and sick to rise. The vertigo was gone, the sense of endlessly falling. The intense cold of the thing no longer stabbed him with numbing lances. He felt no longer the sickening sensation of having his vitality sucked away.

But he felt exhausted, feeble, trembling. He felt *old*!

With an effort he turned his head. He saw what had alarmed the thing.

Thon was coming.

Fleetly, she ran down the canyon, over the shimmering banks of green snow between the faintly gleaming dark cliffs. She was not swathed in heavy garments; she wore only the slip of soft blue silk. But her lithe body was nimbused in rosy flame. An aura of roseate radiance clothed her—as old Midos Ken had been clothed when he defied Garo Nark in his throne room on the Dark Star.

Swiftly she ran down toward him, across the ghostly, gleaming green snow. In one small hand she grasped a thin black tube, no larger than a lead pencil. She had no other weapon.

"Go back!" Dick cried. "My God, go back!"

But she did not hear him. His voice was queerly changed. Its ringing volume was gone. It was shrill and high; it cracked unexpectedly. *It was the voice of an old man!*

The monster hung in the air above Dick, surprise and alarm in its bearing. A long green worm, winged, with red eyes, and all semitransparent, bright and glittering, as bright as flame. Somehow it seemed not material, as we know matter—yet real enough, and cold—cold beyond conception—a thing of frozen flame.

"Go back!" Dick tried to call again, in a voice so queerly cracked and weakened that he hardly recognized it. "Go back before it gets you!"

But Thon was still running toward him, slender, lithe and graceful as a wild thing, lovely. She was like an angel, he thought disjointedly, with that nimbus of rosy radiance bathing her body.

The monster struck.

From one of the violet ovals on its head a long writhing rope of frozen purple fire streamed out. It straightened toward Thon. It separated from the body of the monster. Arrow-like, it sped through the air toward the girl.

Dick groaned, tried to rise, fell back into the luminous snow.

It struck her. But it recoiled from the rosy mantle about her body. It fell back into the snow, a writhing snake of cold red-blue light, writhing like a wounded thing.

Then Thon raised the little black tube.

A narrow jet of blackness leapt from it. A straight, fine black line stabbed from it toward the monster. It did not look like a black ray—it seemed a solid bar of utter blackness.

It struck the glittering monster.

And the weird thing recoiled. It seemed hurt—and frightened. It darted backward from its position over Dick. And the writhing rope of cold purple flame that had fallen beside Thon was suddenly drawn back to it, and streamed up into a violet oval.

THE being of frozen fire retreated. It darted away, over the shimmering plain of green snow, driving fast and low. Before Thon had reached Dick's side, it was gone from sight, in the direction of the cones of blue fire below the horizon.

"Why did you come?" Dick cried as the girl dropped to her knees beside him—cried in that strange, querulous new voice of his. "It might have taken you."

Thon gasped as she looked into his face. And he read horror in her wide blue eyes—dazed, uncomprehending horror, and heart-breaking pain.

Just a moment of that recoiling horror, and then she

broke into tears, and lifted him against her breast. She lifted him into the roseate nimbus that mantled her. Fiercely she pressed his body against hers. She kissed him. And her tears rained upon his face.

"Oh, Dick!" she sobbed. "Oh, my Dick! Why did I let you watch alone? Why did I?"

"What's the matter?" he demanded in the thin, shrill voice that sounded so hideously strange. "What has happened to me?"

He wondered that she was able to lift him so easily.

But Thon did not tell him—evidently she could not. She merely held his body to her, and sobbed out her grief.

In a few minutes Don Galeen appeared. He came running down the dark canyon from the flier, over the gleaming green snow. His mighty, bronzed body was clad only in his soft leathern garment, with the blue shell ornaments. Like Thon, he, too, was wrapped in an aura of soft, roseate radiance.

He came as fast as he could run.

Eagerly, fearfully, Dick watched his face. He saw horror and unbelief come over it, at sight of himself. The gigantic adventurer gasped, seemed to whiten a little. Then, with deep pity on his rugged face, he bent down and lifted Dick up like a child.

Without a word, he started back over the snow toward the *Ahrora*, carrying Dick in his mighty arms. Thon, silent and white-faced, walked along beside him.

They reached the flier. Don carried Dick inside, and down the corridor to his stateroom. He laid him gently on his bunk.

For a few minutes longer Dick was conscious. He knew that they were busy about him, that they made a hypodermic injection into his arm, that they made him drain a glass of some effervescing liquid, which had a sharp, sweetish taste. And presently he slept.

He was alone when he woke.

He felt oddly tired, exhausted, weak. With some effort he threw back the light cover over his body, raised an arm. He stared in horror at the withered, gnarled hand that came up before him.

His hand should have been strong, smooth-skinned, ruddy with fresh blood, and tanned a little. But it was a yellowed claw, shrunk, bony, covered with bloodless skin, wrinkled and dry.

He cried out with amazement and horror. And the voice was not full and rich. It was shrill, broken, querulous with age.

Abruptly he sat up and looked into the mirror on the wall of the little stateroom. He shuddered in disbelieving horror at what he saw; almost he screamed.

He looked at the features of an old man.

His body was shrunken, bent. The skin that covered his bony frame was loose, dry, creased with a thousand wrinkles, yellow with age. His face was shriveled, seamed, nose and chin projecting. His eyes were deep-sunken, dull, feeble. His hair was turned white as snow.

He looked as old as Midos Ken.

The others had heard his cry. They came into the room, silent, pitying. Thon came quickly to him and put her arm around his bent shoulders.

"What's happened to me?" Dick demanded in his shrill, unfamiliar voice.

"That thing was a vampire!" Thon whispered. "It drew the life out of you. It left you old!"

"We are searching for the catalyst of life, you know,"

said old Midos Ken. "Age is a chemical process—and there is a chemical which keeps us young. It is that chemical that we want to make—it is the very essence of life. The body grows old as it is depleted, as the ductless glands secrete no more.

"And the vampire sucked that chemical from your body. It sucked away your youth, your life. It made you old!"

"Will I be this way always?" Dick cried. "It there no hope—"

"You will get stronger, of course," Midos Ken told him. "But you will never be young again—unless—"

"Unless?" Dick repeated breathlessly.

"Unless we succeed in finding the catalyst of life. Then we can make in the laboratory the precious vital fluid that was sucked from you. We can make you and all men young again, for so long as they want to live!"

"And can we find the catalyst?"

"We will have to fight the beings of this planet—the race of the one that attacked you. We will have to invade the cones of blue flame that are their cities."

"And we shall have to fight Garo Nark."

"His ships have come to this planet?"

"They have. They have found us. Two of them have landed in the canyon below us. They came several hours ago, while you were still sleeping. Garo Nark talked to us over the television. He offered to join forces with us, in return for immortal life for himself and his favorites—and for Thon.

"We refused, of course. And he is waiting. Waiting, I suppose, for us to win the catalyst, so that he can step in and rob us of the spoil!"

CHAPTER XI

The Cones of Blue

STEADILY Dick grew stronger, as his body manufactured the vital fluid of which the inconceivable vampire—the Thing of Frozen Flame—had robbed it. On the second day, he was able to walk unaided up the corridor to the bridge. A week later, he was feeling well—though he sadly missed the buoyant vitality of youth of which he had been cheated. He was an old man, short of breath, stiff of back, easily fatigued. But, Midos Ken told him, he was as strong as he would ever be—unless they won the catalyst of life from the weird race of vampires that guarded it.

On the day that he went to the bridge, Thon pointed out to him the fliers of Garo Nark which were lying near them in the green-black gloom of the narrow canyon.

Strange-looking things they were, covered with the light-absorbing substance which made them invisible in the darkness of space. It reflected no light at all—the ships could not actually be seen. They seemed merely black shadows, holes in space, against the green luminosity of the snow and the canyon walls—mere blobs of nothingness, vague-edged shadows of darkness.

They were stationed close together, and down the canyon from the *Ahrora*. They lay just above the covert between the boulders, from which Dick had watched, and where the weird entity of cold fire had found him to suck away his vital force of youth.

Vague, half-invisible, somehow almost painful to the eyes that watched them, those waiting ships were strange things, ominous. Dick stared at them a long while.

Don Galeen was busy over some little device set against the wall—a device that had little quivering needles which he watched intently. Thon was busy with an involved computation, a queer writing instrument in her slender fingers flying over a smooth white sheet. Midos Ken was sitting silent and motionless, his blind eyes shaded—but his finely trained mind, Dick knew, was directing whatever was in progress.

"How are the experiments coming?" Dick inquired of Thon when she looked up from her calculation.

"We are studying this planet," she told him, "the strange radioactivity that causes the green luminiscence of the rocks and the snow, and the various phenomena of the intelligent life of the planet that our instruments can detect.

"There is a link between the radioactivity and the life of the monsters that inhabit the planet. Under those emanations, and in the intense cold of this atmosphere, chemical combinations are stable that could never exist in our world. The conditions here are as necessary for the alien being we have found as they are hostile to us.

"We are discovering the forces that might be used against us, and planning our defense.

"Already we have accomplished something. You remember that rose-colored haze of light that was about me when I came—came to help you." She shuddered at the recollection of the vampire-monster. "It is a screen of stable free electrons, an electronic armor that shuts out the strange radioactivity that causes the green phosphorescence—it is opaque to the short waves of that radioactivity, and to the long waves of heat, while it lets light through. You can see through it. But it is warmer than any insulated suit. And it shuts out those sinister emanations!

"And the monster could not touch me through it. It is protective against its strange substance as against the radioactive vibrations that make that substance possible."

"And the things you drove it back with—the black ray—" Dick asked. "What was that?"

"It was not really a ray. A development of Dad's ether-exhausting bombs. It drives the ether out of a long, thin, cylindrical section of space. And the exhaustion of the ether, cutting off these emanations, seems harmful to the monsters."

Suddenly a mellow, chiming bell-note rang from the side of the little bridge-room—the signal that someone was calling on the television.

"Nark again, I suppose," Thon said. "No harm to hear what he has to say, anyhow.

She moved a little lever. A television screen lighted on the wall. The heavy, evil features of Garo Nark appeared upon it, visible against a background that evidently was the wall of a flier's control room. There was a cruel mouth, a huge, jutting nose, and deep, malignant, black eyes.

His mighty shoulders were in sight, with his garment of crimson silk fastened over one of them. And Pelug, the scrawny man with green, snake-like eyes and scraggy yellow beard, was standing behind his master, looking over his shoulder.

"Enough of this foolish waiting!" Garo Nark began, in a heavy, brutal tone. "What can you do alone? A blind old fool! A girl! An ignorant adventurer! An ape from the past! You are insane to fight me and the perils of this planet at once—"

The thick voice stopped suddenly as he saw Dick. And then he burst into harsh, jeering laughter.

"And look at the ape!" he shouted coarsely. "The ape from the past! Did his hair turn white with the horrors of space? Or does he just begin to remember that he was born two million years ago?"

He laughed brutally again.

"Thon Ahrora, my pretty one," he began, leeringly, "I have a place ready for you in my palace. Come to me. Let me help your father win the secret of life. And we'll be happy forever, darling!"

And at Thon's white-faced wrath he burst again into roaring, bestial laughter.

With a swift motion of her hand, the girl threw over a lever that darkened the screen.

Dick looked out through a port at the two black ships that lay, shadowy and unreal, below them in the canyon.

In a moment the pale violet finger of an El-ray beam flickered from one of them. It struck the faintly luminous face of the cliff behind the *Ahrora*. A huge cloud of steam puffed from it, to fall in a white flurry of snow.

More El-rays stabbed out, seeking the little flier. And among the pale, flickering violet fingers of them were broad beams of mellow golden radiance.

"A NEW ray!" Thon cried. "Dad, they are attacking with a golden ray!"

"One of the ether-exhausting bombs, daughter!" the old scientist cried. "It will plunge us into darkness, and stop the experimenting. But we can afford to take no risk—"

"My God," Dick broke in. "Look at that!"

He pointed down the canyon. Above the black, indistinct blurs that were the half-invisible fliers, the green-black sky was visible, a little scrap of the shimmering, ghostly green expanse of snow could be seen.

Scores of little points of bright light were visible in the dusky green gloom of the sky, above that bit of desert horizon. They moved with amazing speed. They were driving down toward the fliers of Garo Nark.

"They are like the thing that attacked me!" Dick cried. "Dozens of them. Coming back!"

In a few moments they were clearly visible. Shining green worms, with slender, iridescent wings, and huge eyes, red and malevolent, glittering things, with the brightness and transparent unreality of flame. And they were cold—so cold that they seemed to chill the eyes that watched them—they were things of frozen flame.

On they flashed, scores of them, toward the fliers of Garo Nark.

Suddenly the direction of the violet and golden rays was changed. No longer were they played upon the *Ahrora*. They flashed across to meet the horde of swiftly flying monsters.

Despite the rays, the vampire-things came on. They seemed unharmed. And they struck back.

Slender arrows of frozen purple flame flew from them, and struck the half-invisible ships. They writhed over the fliers, coiled about them. In a few moments the ships were dark shadows covered with a bright net-work of the shining purple ropes.

The ships were lifted.

They were swung free of the shimmering banks of green snow, carried swiftly in the direction of the flying rows of monsters.

Streamers of violet luminescence swirled back from their tails, as their crews fought to jerk them free of the net of living purple rope that held them. But the K-ray

generators, powerful as they were, were no match for the weird power of the vampire things. The ships were helpless in the writhing coils of frozen purple flame that held them.

In five minutes, ships and monsters alike had vanished.

Garo Nark had been captured by the alien entities of cold fire. His ships had been carried off, in the direction of the cones of blue light beyond the horizon.

The *Ahrora* remained apparently undiscovered.

Midos Ken, Thon, and Don Galeen continued their experimental work. Dick rapidly convalesced, until he resembled a hale old man of about seventy years.

Seven more days went by. Nothing had been seen of Garo Nark, or of the vampire things that had captured him. The experiments were finished.

"We know as much of this planet as observation from this one point will teach us," Midos Ken said. "And we have devised means of protection against the hostile forces we have found. We are ready, now, to try to find the catalyst."

Once more they gathered in the little bridge-room. Thon inclined the bright control lever, pressed the white cylinder of the accelerator button. The bank of shining green snow dropped away beneath them. The *Ahrora* darted upward, past the luminous walls of the canyon, into the green gloom of the starless sky.

Again the girl moved the little lever. The flier ceased to rise.

Straight northward they flashed, low and fast. The luminous desert of snow raced backward beneath them, a flat and desolate plain, shimmering with weird green radiance. Above them arched the sunless sky, almost black, faintly flushed with the green light from the snow.

Their speed, Dick knew, was well above a thousand miles an hour. At this rate they should reach the mountains beyond the desert in a very few minutes.

Each of them wore, fastened to the arm, a tiny, humming mechanism which charged the body with electromagnetic energy, producing about it the roseate luminosity of the electronic screen. Both of them were bathed in a clinging mist of rosy light. It was their armor against the vampire-things, as well as against the bitter cold of the outer air. And each carried, thrust in a pocket of his slight garment, one of the slender tubes which projected the ether-exhausting force, so as to make a thin, stabbing bar of blackness.

"A few hours—perhaps only a few minutes—and we shall have won or lost," Midos Ken said, sitting thoughtful by the wall.

Don Galeen was bent over a little device on a stand, watching spinning needles.

Dick had nothing to do but to watch.

He looked at Thon, intent over the control lever. Such a girl! So gloriously beautiful. So vital. So young. He loved her!

A few days ago he had been as full of the buoyant force of life as she was, brimming with life and energy. And he had let foolish doubts and fears hold him back, keep him silent. And now he was old. He flexed a twisted arm. He felt its muscles—stringy, flabby. He cursed under his breath.

Then he saw Don Galeen raise his eyes for a glance at Thon. Bright eyes. Flashing with courage, with the fire of youth. And filled with admiration for Thon, with devoted affection.

"I hope they are happy!" Dick murmured to himself. "I'm too old to think of love."

He felt a tear in his eye, and brushed it angrily away.

In a few moments rugged mountain peaks came into view above the edge of the ghostly, shining desert of snow. Dark and grim, but outlined with faint fire of green, they rose against the green gloom of the sky.

Above them, beyond them, were cones of blue light. Vast conical heaps of cold blue radiance, motionless and dim. Scores of them, scattered across a rough mountain plateau—scattered irregularly, yet somehow suggesting the buildings of a human city. They were cones of frozen blue flame, faintly resembling the conical wigwams of an Indian village.

"Look!" Dick cried suddenly. "They are coming!"

Bright cold points of light were darting through the sides of the vast blue cones, flying rapidly toward them. By scores, by hundreds, the vampire-monsters were rising to meet them.

Dick raised his telescope lens. In it he could see them clearly, long worms of cold green flame, with motionless wings of flashing diamond light, and frozen, evil eyes of ruby. There were strange ovals of violet on the sides of the heads—behind the green, viscid sucking disks.

Some of them seemed to have dark protuberances—humps—upon their backs. But these he could not see clearly enough to distinguish what they were.

Frozen arrows of red-blue fire sped from those weird ranks, toward the *Ahrora*.

In a moment the air about the little flier was filled with twisting fiery streamers—writhing ropes of chill purple fire. They coiled about the little vessel, wrapped it in a living net of flame.

Their headlong speed over the desert of shining snow was suddenly checked. The luminous ropes had stopped them. Thon moved the useless lever, holding the white accelerator button at the bottom of its socket.

The *Ahrora* trembled a little. But the full power of her K-ray generators could not break her loose. The things of cold fire were dragging them down to the snow.

"The electronic armor!" Midos Ken cried. "Quick, Don Galeen!"

Don Galeen was still stooping over the little device on the stand, watching the vibrating needles. Now he adjusted a little dial, moved a lever.

A nimbus of rosy flame spread suddenly over the little flier, over the surface of every object within it. It was a mist of roseate radiance such as mantled each of the adventurers.

The writhing streamers of cold purple fire were hurled back from the ship. They fell away below it, twisting, contorted, evidently injured.

The *Ahrora* leapt forward again. The vampire-things—the winged worms of cold bright flame—darted back, made way for her. Again Dick noticed the dark objects upon their backs. But still he could not distinguish them clearly.

They flashed toward the faintly shining mountains, leaving the groups of blue cones of light on the rugged plateau behind them.

In a few moments they reached the edge of the waste of shining snow, where the black foothills rose. It was still a score of miles to the plateau of the cones, which was a full mile above the level of the desert.

But the cones were of amazing size. Dick guessed that they must be thousands of feet thick at the base, and a mile in height. There were scores of them, irregularly scattered over the green, gleaming plateau.

It was a city of colossal cones of frozen blue light!—an alien city of an alien world, inhabited by inconceivable vampires—spawn of an alien universe!

And the four were rushing toward it on a daring raid, to win the greatest treasure that man has ever sought—the secret of immortal youth!

"We've won!" Dick was shouting, when they had passed through the weird ranks of the monsters, and were darting over the edge of the desert of snow. "They can't do a thing against the electronic—"

He stopped with a gasp.

Abruptly, the *Ahrora* was falling!

They had hurtled through a straight wall of silver haze, hardly visible. Beyond it, the power of the generators quickly slackened. The little flier plunged downward, in a long spinning flight. Thon struggled in vain with the control lever.

"THEY are broadcasting some disturbance that interferes with the K-ray!" Midos Ken cried. "It stops the generators as my ether-exhausting bombs do, but doesn't interfere with the vision!"

Still they spun downward, toward the foot of the long, rugged slope that led upward toward the plateau of the cones. The K-ray generators were still functioning, though very weakly. Thon was able to check the fall only enough to keep the impact from being fatal.

The *Ahrora* struck heavily on a rugged slope of dark boulders that shone with faint green luminosity. She rolled over twice, but came to rest lying almost in a normal position.

Thanks to her indestructible neutronium hull, the flier was not injured. And the K-ray device which protected the passengers by transmitting all shocks and pressures equally to all particles of matter in the ship, had still functioned sufficiently to save the four from any serious injuries, though they had been flung roughly against the floor.

"Pride goeth before a fall," Dick muttered, as he got to his feet, rubbing a bruise on his head. "And some fall it was, this time!"

The others were uninjured. In a moment, Thon's cool fingers were tenderly caressing his bruised head.

"Poor dear!" she cried. "I hope you aren't hurt. You were so strong, before—"

She choked, and stopped, with tears glistening in her glorious blue eyes.

"Watch!" Don Galeen's deep voice rang out warningly. "They are coming."

"They can do nothing, I think," Midos Ken said. "Our electronic screen is still intact. They cannot break it."

Dick swung open one of the observation ports. He saw that the little flier lay on a rocky mountain slope. Huge boulders, glistening with dim green radiance, loomed here and there about them. Above them was a jutting outcrop of stratified rock. There was an occasional patch of snow, shimmering with greenish phosphorescence.

But there was no grass, or shrub, or tree. Our familiar kinds of life did not exist upon the Green Star. Its only living things were the weird entities of frozen fire—unless, as Dick had imagined, and Midos Ken had hinted, the core of the planet itself were alive!

Above them was the black bowl of the sky, faintly flushed with the deepest green.

In that gloomy void, bright specks of light were visi-

ble. The vampires, wheeling above, some of them dropped, became visible as winged worms of frozen emerald light. Writhing serpent-shapes of cold, purple fire sent from them, darted cautiously toward the helpless flier. Things of red-blue light fell in the snow, slithered snake-like about them.

But still the roseate radiance covered the fallen ship and the four within it. The ropes of fire could not penetrate that electronic armor. Those that touched it darted back, as if injured.

For an hour, perhaps, the monsters wheeled above them. Then they vanished, flying northward, in the direction of the astounding city of cones.

"They have gone," Dick reported. "For a while, at least."

"And it's time, too, for us to leave," Midos Ken said.

"Where?" Dick demanded, his aged voice eager with sudden hope. "You mean we can still go on?"

"Of course. I had not counted on being able to enter the cones of light with the *Ahrora*, in any event. I had hoped to get closer, of course, before we landed. But we are ready to go on afoot. I had imagined that they might be able to stop our generators—but I did not know their ray would be effective at so great a distance."

Half an hour later they opened the massive door of the flier and stepped out upon the desolate mountain side. Since the rosy electronic screens that nimbused them held in the heat, they had no need for heavy garments; they wore only the light, sleeveless slips. Each of them was armed with one of the little tubes that projected the bar of blackness. Dick carried his atomic pistol—the weapon with which he had blown one of the monsters to fragments, only to see it reassemble itself. Thon and Midos Ken carried other weapons and instruments. Upon Don Galeen's broad shoulders, in addition to his weapons, he carried enough synthetic food to ration them for several days.

The *Ahrora* was locked. The electronic screen was still in effect to protect it from the Things of Frozen Flame. Midos Ken had scientific traps set about it to protect it from Garo Nark; in case that worthy should still be able to molest it—though since they had seen Nark's fliers captured and carried away by the vampire-beings, the latter precaution seemed superfluous.

In single file, they started up the long, rugged mountain slope, among colossal fields of boulders that gleamed with pale green light, over shimmering banks of snow. Don Galeen, mighty adventurer of many planets, broke the trail, tramping effortlessly along in the lead. Dick brought up the rear, feeling faintly envious of the rugged giant ahead. A few days ago he himself had been such a man; now he was a shrunken shell. But—and his heart leapt at the thought—if they won, his youth would be restored.

In a few minutes the little red cylinder of the *Ahrora* was out of sight—lost in the waste of dark, faintly gleaming boulders behind them.

For weary hours they climbed—struggling up perpendicular cliffs, picking a way across vast flat fields of broken, volcanic lavas—black rock that dimly fluoresced with green. They were leaping yawning cracks that seemed to reach down in endless green abysses, and tramping across wide fields of snow, shining and green, that masked unexpected pitfalls.

When possible, they kept to canyons and ravines, for the sake of cover. Twice they saw one of the vampire-things, wheeling high, as if to watch the *Ahrora*.

Each time they crouched in the shadow of a convenient cliff or boulder, and waited until the strange scout had returned beyond the line of peaks that rose before them.

When they first stopped to rest, they had covered half of the score of miles from the flier to the top of the range. They were exhausted by the hours of effort—all except Don Galeen, who seemed never to tire—but it seemed to Dick, when he looked about, that the slightly luminous peaks outlined against the black sky ahead were as far away as ever, and that it was a mere stone's throw behind them to the edge of the shimmering, barren expanse of the desert of green snow.

DON Galeen picked out a wide cave beneath a jutting rock, in which they stopped. They ate heartily of the synthetic food he carried, and drank water obtained by melting snow over a little atomic stove—aside from its fluorescence, the green snow was no different from any other frozen water. Then they slept, Dick, Thon, and Don Galeen taking turns in standing guard at the mouth of the cavern.

Rested and refreshed, the next "day" they went on with renewed vigor. Hours of toil led them across the last snow-covered lava bed. They climbed the last boulder-strewn slope, and stood upon the summit of the range.

A few hundred feet below them, and a mile away, was the city of cones. City of the Things of Frozen Flame!

It is hard to imagine it.

The weird city stood upon a rugged plateau, pitted and cracked—evidently covered with lava hurled from a dead volcano. Black rock, rough and broken, was seamed with a thousand fissures. It gleamed with soft, green luminescence. Here and there upon it were patches of shining snow.

Scattered across it for a distance of many miles were the cones. Cones of intense, cold blue light, of frozen, solid light! They looked substantial as cones of azure crystal, as cones of sapphire!

They were colossal.

Two thousand feet through they were at the base—and more. And they were over five thousand feet in height—a mile. They were huger than any buildings ever erected on earth.

Hundreds of the vampire-things stood upon the vast, volcanic plateau—some of them tens of miles away.

They were scattered irregularly. The surface of the ground had not been smoothed among them. There were no paved streets. The twisted flows of lava were rugged as they had always been. The cones of blue seemed to have been dropped on unbroken wilderness. The Things of Frozen Flame were not confined to the surface of their planet as men are.

The four flung themselves flat when they reached the summit of the range, and watched.

Scores, hundreds, of the vampire-things they saw. Winged green worms, with glistening iridescent wings, and evil scarlet eyes. Alien things with the queer unreality of frozen fire.

They glided out of the smooth sides of the cones of cobalt light. They flashed across from cone to cone. They vanished upward in the air, or off toward the horizon. They detached writhing things of frozen purple light from their bodies, and sent them flashing off on unguessable errands.

It is almost beyond imagination, that city of an alien race upon an alien star. Its weird beings were intelligent

—in their dreadful way. Considered from absolute standards, their advancement may have been equal to that of man. They were so different from humanity, from anything that ever lived on the earth, that they are almost beyond conception.

They had no machines—but what need had they for machines when they could dart through space as swiftly as an airplane, or separate matter from their bodies which assumed any shape they desired?

They had no industry—at least, no industry as we know it. They had no need to make machines, or to find fuel to feed them. Evidently they did not toil as men do to feed themselves. It was only later that the four found out how they fed themselves—now the act of incredible vampirism upon Dick was the only clue.

For an hour the four lay there, watching.

Then Thon produced a little red needle swung in a crystal case—the detector of the emanations from the catalyst of life. She balanced in on her palm. The tiny scarlet needle wavered—then pointed straight at the base of a blue cone that stood before them, on a little knoll that rose slightly from the surface of the plateau, not two miles away.

"The substance we seek is in that cone!" she said. "In sight—at last!"

"We are ready to go down and play our hand," said Midos Ken, "to win or lose!"

They rose from their places of concealment, left the summit of the range, and advanced briskly down the easy slope to the level of the lava plateau.

Dick's heart was beating high, almost in his mouth. They were in plain sight now, there was no use to try to conceal their advance any longer. It all depended upon the science of Midos Ken, and the skill of lovely Thon Ahrrora, and the courage and strength of Don Galeen—pitted against the alien forces of this world!

The treasure was near. The wonderful substance that held the secret of life! Immortal youth of all humanity! Restoration of his own lost vitality! So near, yet guarded so strangely and so well!

They plunged down the rocky slope almost at a run, toward the colossal, towering cone of intense blue light at which the little red needle pointed. They must pass another cone, which stood nearer, to reach the one on the little hill.

They had gone a score of yards. Nothing had happened. But several of the glittering entities of cold light were in view, gliding from one cobalt cone to another.

"Look out!" Dick cried suddenly.

An arrow of frozen purple light came flashing at them from the nearest cone. It struck Don Galeen, recoiled from the haze of roseate radiance about him, and fell on the rocks like a writhing snake. And a dozen more sped after it, until the air about them was filled with twisting ropes of fire.

They were discovered!

Then a score of the beings of cold fire came into view, gliding swiftly toward them from a far-off cone of chill azure light. They had long, thin, worm-like bodies of glistening green, semitransparent, wings like frost of rainbow mist, and eyes of frozen scarlet.

Swiftly, they flashed toward the four. As they came, Dick saw that they had what seemed to be black protuberances upon their backs, like those which had swarmed out to meet the *Ahrrora*. Nearer they came. He saw what the black things were. And he gasped.

They were men!

Mén, clothed in heavy garments, were mounted upon the glistening green worms, riding them astride.

One flashed forward, ahead of the others. It stopped, hanging in the air a dozen yards before them. Its body of green, semitransparent substance was thick as a barrel, many yards long. A huge man, a giant, was riding astride on it.

Dick made out his heavy features through a transparent mask that protected his face.

The strange rider was Garo Nark, Lord of the Dark Star!

He bowed mockingly, with an ironic salutation.

"Welcome, friends. I trust, fair Thon Ahrora, that you have repented of the hasty act that ended our last interview—that you have come to be my bride. And I trust that you, Midos Ken, wise man that you are, have come to see the way of wisdom—that you are willing to help me to find the secret of life."

For a long time silence only answered him. The four were dazed. More incredible even than the vampire things was the fact that Garo Nark should seem to have mastered them.

"You are amazed—even you, greatest scientists of the universe?" Nark asked, jeeringly. "These things are my friends. They carried off my ships, as you doubtless saw. But they could not open them to get us out. We came to a deadlock—they could not reach us; we could not get away. So we established communication. A sort of picture-writing—which they developed by means of their own until it is almost telepathy.

"I told them of you. I told them you had come to steal the thing that is the very food of life to them. The stone in the cone of blue fire yonder."

He jerked his thumb at the cone at which the red needle pointed.

"I offered to use my knowledge to fight you, in return for my freedom. They are intelligent—strange as they are. They accepted. Now they regard me as a powerful friend.

"So I give you four fools one last chance to surrender. If Thon will come to me—if you will help me get away with the stone of life—I will save your lives. If not—I will use all my own science, and all the alien power of this planet, to crush you!"

Midos Ken held up a solemn hand.

"Garo Nark, you already know our answer," he said.

CHAPTER XII

The Catalyst of Life

AS one, the four stepped forward, over the glistening, green-black lava, toward Garo Nark. All fingered their weapons.

Black rage flamed on the evil face of the giant who sat upon his monstrous steed. He was a man on a winged worm, on a dragon of cold fire. He flung out a heavily wrapped arm, in a signal to the weirdly mounted men behind him.

"Fools, you die!" he shouted. "You may defy me. You may defy the masters of the Green Star. But together, we can beat you!"

The men upon their flying vampire-steeds wheeled closer. In their hands the men raised long tubes of black crystal, like the El-ray projectors. Garo Nark's weird mount wheeled, carried him back to join them.

At a gestured signal from him, they leveled the weapons.

Rays of cold fire stabbed from them.

Beams of frozen light they were—cold as the azure cones of that alien city—icy blue beams that flickered about the four in a glacial aurora.

It was a projected ray of cold—a ray that absorbed all heat from objects it touched, that lowered their temperature to the absolute zero. A weird and amazing weapon, the joint product of the science of the Dark Star and of the unearthly arts of the beings of the Green Star.

The very air before those chill blue rays was cooled to the point of condensation. It fell in frozen mist—in tiny hard particles, that glittered like frost of sapphire in the cold blue of the rays.

Boulders, that the icy, azure rays fell upon, cracked and split—splintered explosively by the terrific, contracting force of cold.

Even the roseate nimbuses of electronic armor about the four were not completely proof against it. Dick felt those glacial rays of icy blue bite through his body. He trembled, shuddered with cold. His teeth chattered.

Midos Ken, shivering and almost helpless with the sudden, unexpected chill, fumbled futilely with a weapon he held in his hand.

Strange horror came with those frozen blue rays. Dick felt a sudden return of the nightmare paralysis that had gripped them all when they had landed—from which Don Galeen had saved them with his *tian*, until Midos Ken could prepare his protective injections.

Bitter cold pierced him numbingly. He felt again that appalling, vertiginous sensation of endlessly falling through a limitless blue abyss. And he fancied weird worm-shapes swarming about him in the void, clinging to him, sucking away the substance of his life—as that unthinkable vampire of cold flame had taken his youth from him a few days before.

Then Midos Ken, forcing his hands to move, produced an object from his pocket. A black tube or bulb of crystal. It was, Dick knew, one of the ether-exhausting bombs, which brought complete darkness. He dashed it against the glistening volcanic rocks upon which they stood; it shattered.

Instantly, utter blackness enshrouded them. It was a pall of ebony opacity, inconceivably black. No faintest ray of light came through it. It was like a fluid of blackness poured about them.

It stopped the cold blue rays, and grateful warmth came tingling to Dick's body again.

"Dick, dear," Thon's soft voice came to him through that wall of utter midnight, "where are you?"

He moved toward the voice. Gentle fingers reached out, touched his shoulder, caught his hand and drew him toward the others.

"We must all hold hands," she said. "It is the only way to keep together."

"I'm an old man!" Dick thought angrily. "I can't take care of myself! She has to look after me!"

No sound came to them from their enemies.

"I have used an ether-exhausting bomb," Midos Ken said. "It seems to paralyze the monsters. Their nerve-currents, you know, are a sort of etheric wave, which can reach through empty space to control those shapes of purple light they send away from their bodies. We were able to pick up those waves, in the *Ahrora*, and study them. My bomb has exhausted the ether, and stopped the waves."

"Then they are helpless!" Dick cried.

"Those outside the cones of blue light are helpless. But the object we seek is inside one of the cones. And if my theories of those cones are correct, the ether-exhausting force did not extend there. We will still have to fight any of the things that happened to be inside the cone that we must enter."

Again they went forward. Midos Ken was in the lead, picking a way through the absolute darkness with the aid of his marvelous hearing. By listening to the reflected sounds, or echoes, he could guide them surely forward, avoiding the boulders that scattered the rugged boulder field. Don Galeen came behind him. And then Thon, leading Dick by the hand.

They had to travel nearly two miles through that utter midnight, to reach the cone. Dick had no way of measuring the time that passed. But it seemed to him that they spent ages stumbling forward in the darkness.

Then abruptly Midos Ken stopped them with a low word.

"We have reached the edge of the cone," he whispered. "The darkness ends in a sheer wall. Beyond is frozen blue light, with the monsters floating in it—the Things of Frozen Flame!

"I walked into it, felt the cold of it before I could draw back. Step forward, one of you, and see if I am not right."

Dick stepped quickly forward, Thon's hand still clasped with his.

Indeed, he stepped out of the rayless blackness, into a vast space filled with cold blue light. A cone of chill, azure radiance. He could see the curved opposite side—a wall of utter darkness—half a mile across it. And the point, a mile above.

It was a hollow cone of light, as if a dead-black liquid had been poured over a transparent cone of glass, in which a blue light was shining.

Its floor was of rough, black volcanic lava, burned, cracked and twisted, scattered with huge, fire-glazed boulders and broken with the yawning black holes of lifeless fumaroles.

The Things of Frozen Flame, apparently, lived wholly above the ground. They had no need, it seems, to smooth its surface, to make floors or roads.

Dick saw a score of them, floating in the chill blue light, a thousand feet above the rock floor of the cone—long, worm-like bodies, glittering, green, semitransparent, with frail, prismatically glistening wings, and huge eyes, scarlet and malignant.

STRANGE sensations came upon him when he stepped through that wall of blackness into the cone. He felt bitter, numbing cold biting into his body. He felt a reeling, dizzy sensation of falling, so that he could hardly stand erect.

This vast space of chill blue light, with the writhing, worm-like monsters of icy fire floating in it, was, he knew, connected with the hideous dreams he had experienced—dreams of dizzy, endless falling among writhing, clinging things that sucked out his life.

"Here is the detector," came Thon's low voice through the black wall of the cone. "Look at the red needle that points to the thing we are after."

Her white hand, clad in rosy flame, appeared through the gloom. Grasped in it was the tiny, compass-like device, with the scarlet needle. He balanced it upon his hand. The needle pointed toward the center of the cone.

He looked in that direction. The black, rugged floor of the great cone rose in a low hill. The summit of that hill was in the center. Upon the summit was a low pyramid of what seemed a dull black metal—a sort of pedestal or altar.

Upon the pyramid of black rested an amazing thing. The red needle pointed straight at it. Dick knew that it was the catalyst of life, which Midos Ken had sought through the universe.

Like a great diamond, it was, flashing with prismatic rays of many colors, quivering rays of sparkling, living light darted from it, of hot, pure scarlet, of intense, ethereal blue and vivid green, bright as if it were the pure essence of life. Some were of warm orange, deep violet, flame-yellow. Every color of the spectrum flashed from that strange crystal.

And among those rays was a new color, indescribable, for it is like none known before. Some combination of rays, which affects the human retina as those of no known color.

Then Dick saw two of the vampire-things he had not seen before. They swam down toward the great crystal through the chill blue radiance, and hung motionless over it. Their green disk-like, sucking organs were extended toward it—drawing in its living fires!

They were feeding!

They consumed the force of life that streamed from the strange gem.

Then a sudden movement drew Dick's attention toward one side of the great cone. There he saw one of Garo Nark's fliers. Semi-invisible, it was a vaguely defined blur of nothingness, among the black, volcanic rocks.

A strange machine was set up beside it. There a few men were busy. And another of the Things of Frozen Flame was hanging over the machine. This, Dick supposed, was the telepathic device by means of which Garo Nark had established communication with the monsters.

All of that he saw in a very few seconds.

Suddenly the monster above the machine darted down. One of the men was lifted by a twisting tentacle of chill, purple light, which had been abruptly extended from a violet oval on the side of the monster's head. The tentacle deposited him upon the long, green body.

The Thing of Frozen Flame came plunging toward Dick, with the human rider clinging to it. The man raised a black, crystal tube. From it stabbed an intense blue ray, flashing like a glittering sword of cold through the dim, frozen blue gloom of the cone.

A ray of cold. It struck Dick, pierced him numbly. His teeth chattered. He was paralyzed with cold.

Then Thon tugged on his hand, drew him backward into the rayless wall of darkness. They retired a few yards from the edge of the cone. Dick related, in a whisper, his account of what he had seen.

"The crystal on the black pyramid!" Midos Ken cried, when he had finished. "That is the catalyst. It is the rare treasure that I have sought for so many years!

"It is not strange that the monsters guard it so well—its life-giving emanations must be their very food. They may have been originated by the force of its rays alone.

"Now we must enter the cone. Fight our way to the crystal. Take it, and make good our escape. And we will have given humanity the greatest treasure of all the universe!"

Side by side the four of them burst through the wall of darkness into the cone of chill blue light.

Three steps they advanced inside the tenebrous wall—

four steps. Dick was watching alertly. He saw the Things of Frozen Flame drop swiftly from where they swam, high in the chill blue light of the cone. He saw them drop beside the half-invisible flier, pick up men armed with long black tubes, put them astride themselves.

The monsters came darting at the four invaders, and carried the armed men mounted upon them.

Arrows of frozen purple light darted from the violet ovals on the monsters' heads at the party led by Midos Ken, blind as he was. Twisting, tentacular shapes of red-blue fire struck at them, recoiled, fell writhing about their feet. The roseate nimbuses still clung to the bodies of the four, enclosing them in electronic armor impregnable to the things of light.

Frozen blue rays, intensely bright, radiated at them from the jet-black tubes carried by the riders, rays that absorbed all heat. The air before them fell in crystal flakes that glittered like tiny sapphires.

Dick shivered, shrank involuntarily, and the rays smote them with numbing cold, even through the rosy electronic screens. Bitter cold was piercing his limbs. And suddenly he was afflicted with the nausea of falling, so that he reeled and stumbled.

The monsters, with their weird riders, were flashing down upon them.

"Try the black tubes!" tersely ordered Midos Ken.

They raised the slender tubes, which projected the ether-exhausting force. Bars of blackness stabbed from them. But only for a few feet. At a distance of half a dozen yards the tenebrous bars faded, vanished. They did not reach the monsters. The ether-exhausting force refused to function in the glacial blue light of the cone.

The winged green worms, with their human riders, were upon them. Black-clothed men, impatient with the slow effects of the chilling rays, leapt from their incredible winged steeds and advanced on foot, a score of them, hastening to join in physical combat.

One leapt at Dick.

Instinctively, he snatched out his atomic pistol. He had almost fired it, when he recalled that the explosion was likely to be fatal to himself, if he used the weapon at very close range. He sprang forward to meet the black-clad minion of Garo Nark, who was rushing at him with outspread arms, evidently with the intention of seizing him in a crushing grasp.

Though Dick's muscles, weakened by his incredible experience with the vampire-monster, responded indifferently to his needs, he ducked and contrived to evade those grasping arms. Swiftly, he raised the atomic pistol, brought the butt of it heavily down on his attacker's head.

The man crumbled, gasping, and collapsed at his feet.

A cry of horror came from Thon.

He whirled, saw the girl slowly stiffening in a dreadful paralysis, her face a frozen mask of incredulous horror. A huge, black-clad man was standing over her. He held something in his hand that he had snatched from her arm. Dick saw that it was the little instrument which generated the electronic screen.

The roseate nimbus had vanished from the girl's slender body. She had no protection, now, from the frigid rays, or from the horrible writhing shapes of purple flame from the monsters.

Midos Ken and Don Galeen were surrounded in a milling mass of struggling men. Dick glimpsed the broad shoulders of the adventurer of space, swinging regularly as he dealt terrific blows.

Dick swung on the man who had stripped the electronic protector from Thon, raising the heavy atomic pistol again. He brought it down with all the strength of his arm, behind the man's ear. Without a sound he toppled to the ground.

Then, with a quick motion, Dick unfastened the electronic armor generator from his own wrist, and snapped it about Thon's arm.

"Death to be without it!" he muttered. "And I can't let her die!"

Fearful cold struck him like a frozen blast when he slipped the little instrument from his arm. Bitter cold, numbing, piercing. And with it came incredible horror—the nausea and sickness of unbroken falling, and the hideous, waking nightmares of writhing, unnameable things that sucked all vitality from his body. Swift paralysis came over him.

Even as he snapped the tiny device on the girl's arm he swung about again, leveling the atomic pistol. He worked the trigger rapidly, as fast as he could move his finger. Tiny bright sparks spat from the little weapon.

Crushing explosions came swiftly; blinding bursts of flame flashed before them. Terrific explosions shattered man and monster—explosions that released the incalculable energy of the atom.

HE fought the paralyzing cold, the vertigo of falling. Slowly he swung the weapon, shattering the things of cold fire and their human riders with the fearful, deafening blasts of atomic energy. Even if the things can put themselves back together, he thought, I know the men can't. This cold will get me pretty soon, but I'm selling myself high.

Suddenly, there were no more living men or moving monsters before him. He tried to turn, to see how Don Galeen was faring with the men he fought. But the swift-moving paralysis had seized his muscles. He could not turn.

With all his will he swung his arm up again, in the direction of the half-invisible flier at the other side of the vast cone of blue light. He aimed, pressed the trigger a half dozen times with the last spasmodic efforts of his muscles.

Blinding explosions hid the flier from view for a moment. Then it was but a twisted mass of white metal.

Then the horror held sway. Icy needles of cold stabbed through his body. His skin seemed a stiff, frozen armor. And still he felt the vertiginous sensation of falling. He was falling through a void of chill blue gloom. And appalling monsters—writhing worms of cold green flame—were twisting about him, clinging to him, fastening viscid, green suction disks to his body.

Then suddenly a hand drew him back from that void.

The warmth of the rosy electronic screen was about him again. Thon had recovered, had picked up the little instrument from the inert hand of the man who had robbed her of it, and snapped it on Dick's arm.

Don Galeen, huge fists still clenched, was standing over the body of the last man he had knocked down.

About them were the still bodies of half a dozen men. A few yards away the black rocks were splashed red with the remains of those Dick had blown to fragments with the atomic pistol. Beyond them were the scattered fragments of the Things of Frozen Flame—masses of glistening green jelly, and glittering scraps of the iridescent wings. Living fragments. They were still glowing with green, pulsating fires, stirring and coming together again.

"Smash them up some more!" Thon cried, handing Dick the atomic pistol, which he had dropped.

He took the weapon, fired it swiftly. In a few minutes the spot where the things had fallen was a smoking waste of shattered rock, the fragments of the things hidden in the pulverized mass.

"Well, I guess they won't get themselves back together very soon, anyhow," he muttered, grinning.

Thon threw her arms around his neck, kissed his cheek impulsively.

"Oh, Dick!" she cried. "It was wonderful of you to save me. When you exposed yourself to do it. But you mustn't do such a thing again! You mustn't die!"

"I'm an old man, now!" Dick muttered gruffly. "What does it matter about me?"

"It matters a great deal," she told him. "And you will soon be young again. Our way is clear to the catalyst!"

Already Don Galeen was striding forward toward the glittering crystal on the black pyramid, guiding old Midos Ken with a strong hand on his shoulder. Hand in hand, Dick and Thon ran after them.

At a stumbling run, they hastened over the rugged lava flows—a strange, fantastic scene. It was a waste of black rock, burned and twisted. A tenebrous roof above, and frozen blue light, surrounded with a cone of utter blackness. The four stumbled forward, over the rocks, toward a low pyramid of black metal, dull, unpolished. And upon that altar was a magnificent jewel—a great, strange crystal, scintillating with many prismatic colors, with gleams the human eye had never seen before.

They reached it, panting with excitement and exertion.

The pyramid was low, not three feet high. Its base was deep in the volcanic rock. The wondrous stone was set in its top. The crystal was a regular polyhedron, with many flaming faucets, four inches through, perhaps—darting forth scintillating rays of every hue—and of colors known nowhere else.

Even when they were many yards from the stone, Dick felt its rays. They struck him with a stimulating warmth; they infused him with an odd exhilaration. He absorbed them like a wine of delight. Sheer, buoyant ecstasy filled him.

He ran the last few paces to the stone at a quickened pace. His blood was flowing faster. New fire was in his body. His mind quickened; his perceptions grew keen. Sharp desires flamed up in his breast, hungers, thirsts for achievements, for power. And with the desires he felt new ability and energy.

He paused before the marvelous stone on the black pyramid, threw wide his arms, bathed in those living rays. Their subtle stimulation penetrated; his body seemed to swell with new life.

"Oh, Dick!" Thon cried, beside him, "you are growing young again!"

Time seemed no more as he stood there, washed in a river of life. His heart was beating swiftly; hot blood was rushing through his veins. His mind was a mad whirl of confused dreams, desires, ambitions. He was intoxicated with the fire of youth.

Then abruptly the curious spell was passed, and he was again aware of his surroundings. The stone had wrought its change in him; its rays intoxicated him no longer.

Midos Ken was standing near it as he had been, arms thrown out, a look of rapture on his face. And the old scientist was old no longer. A lean, tall youth he had become. His body was erect, arrow-straight. His

muscles smooth and hard. His face was like a boy's, every wrinkle gone, firm and suffused with the glow of youth. His hair was crisply black.

But his eyes were not restored.

Don Galeen, too, seemed extraordinarily stimulated. He had not been old. But his figure seemed a trifle straighter, his mighty shoulders a little broader, his clear brown eyes a little brighter. His tanned skin had a bit more of the ruddy hue of youth.

"Dick, you are young again!" Thon cried, transported.

She seized Dick's hand, held it up for him to see. No longer was it a gnarled, yellow claw. The skin was fresh and pink, the flesh firm, the fingers smooth and tapering. A lean, strong hand—the hand of a youth!

Then it struck Dick that Thon was remarkably attractive. The fire of the wonderful crystal seemed to have added to her already peerless youth and beauty. Her fair skin bloomed again; her eyes were flashing. She seemed to bubble with animated youth.

"I'm so glad—for you!" she whispered.

He closed his lean hand about the slim white fingers that had held it up for him to see. He looked into her deep blue eyes. They were aglow with delight, shining with tender concern—with love.

Slowly, reverently, he put his other arm about her slender shoulders and drew her warm body against his. He bent his head, and kissed her solemnly on the lips.

"QUICK!" Midos Ken shouted, in a new, deep voice that rang with energetic youth. "Break loose the stone! We must get back to the *Ahrora*. Garo Nark and his men are still at large, in the darkness outside the cones!"

Thon and Dick slipped reluctantly from their close embrace.

Don Galeen had turned quickly to the crystal. They stepped up beside him. The wondrous scintillant gem was mounted in the top of a low pyramid of black metal. It was deeply set, firm. Don caught it with a broad hand, tugged with all his mighty strength. It did not come free.

Quickly Thon produced the slender black cylinder of an El-ray projector. She moved the sliding silver ring. A narrow violet tongue leapt from the end of it, blindingly brilliant. With slender, skillful fingers she plied it, cutting the black metal prongs that held the stone. Steam hissed up, condensed in spirals of white vapor, fell in white flakes of snow.

The stone was loose.

Don Galeen snatched it up, fastened it in the pack he wore on his great shoulders. They turned, hastened across the twisted volcanic rock, toward the unbroken black wall that enclosed the vast cone of blue light.

Safely they passed the torn waste of shattered rock, where the explosions of the atomic pistol had blasted the Things of Frozen Flame into indistinguishable fragments. In time, the weird life that animated them might succeed in reshaping them. But it would be no quick process.

They reached the tenebrous wall of the cone. Without hesitation they plunged into it—into the utter obscurity of the lightless space from which Midos Ken's bomb had exhausted all the ether. They fell into single file again, with Midos Ken in the lead, finding the way by aid of his miraculous sense of hearing. Don Galeen came behind him, carrying the wondrous stone of life. Then Thon. And Dick, in the rear, guided by the girl's light touch.

"Silence!" came the whisper of Midos Ken. "It was somewhere out here that we left Garo Nark. The ether-exhausting bomb left the Things of Frozen Flame helpless. But it hurt Garo Nark no more than it does us. If I know the Lord of the Dark Star, he will try to make an opportunity to betray his strange allies, to attack us, and to make off with the stone. No weapon will function in this space from which the ether has been exhausted—we will be helpless if attacked by his whole band."

Anxious minutes went by. Making as little sound as possible, the four slipped forward through absolute midnight. But occasionally a rock was loosened beneath their feet, clattered down into some little declivity. Each time the sound seemed appalling. They paused in tense expectation of discovery and attack. And each time, hearing nothing of an enemy, they went on again.

At last Midos Ken paused, whispered. "We are just passing the summit of the range. We should be beyond Garo Nark—"

"Perhaps," came a low, mocking voice from the darkness beside them. "But not all is as it should be! I take it that you have brought me the stone?"

Another jeering laugh came from the darkness. The malicious laugh of Garo Nark. And above it Dick heard the dry, demoniac chuckle of the scrawny, green-eyed man called Pelug.

"Quick!" Don Galeen hissed.

Touching the others, he made a mad dash to one side, away from that satanic, triumphant laughter. Leading Thon behind him, Dick lowered his shoulders and charged through the darkness, as if trying to break through the opposing line for a five-yard gain.

Fate was against him. He stumbled over an unseen boulder, fell upon his face. Thon came down quite solidly on his back. Before either could rise, a score of men had rushed upon them from the blackness, piled upon them and held them to the ground.

For a moment there were sounds of violent struggle from the direction Don Galeen had taken. Then he, too, was a helpless prisoner. Various voices announced to Garo Nark that all four were successfully captured.

"The game is played," he said tauntingly to Midos Ken, "and I have won! I have the stakes we played for. The stone that will give endless life to me and to those who earn my favor! And my blushing queen-to-be!"

"But you have aided me, Midos Ken. It was your science which paralyzed these monsters. And it was you who brought the stone out to me. And I am just. I will reward you for that!"

Garo Nark laughed mockingly.

"I will give you your life! And your liberty! I will leave you here. And the ape from the past with you! But your weapons and your garments are mine, as spoils of war. And if you should get cold, when this warm darkness is gone, if you should get hungry, if the monsters take you—well, remember that I warned you!"

He laughed gloatingly. Pelug's diabolical chuckle rang out, as did the approving grunts of other men.

"And so, farewell. I make you Lord of the Green Star, with this ape to rule over—and the monsters who live in the cones! I wish you a long reign, Midos Ken. But I warn you! Now that they have lost the stone of life, the monsters will be hungry!"

"Thon Ahrora will go with me, to be one of the queens of the Dark Star. And Don Galeen I shall take, too. For it may be that I shall wish to know something of the stone, which I must persuade him to reveal."

"One of my fliers was taken into a blue cone. But the other is near. We can reach it. When this night of yours is gone, and we can fly again, we shall be ready. We shall escape before the monsters recover."

"And farewell to you, Midos Ken, Lord of the Green Star!"

As the evil giant had boasted, his men had stripped Dick and Midos Ken, removing their weapons, their garments, the little devices on their arms which generated the electronic screens. As his thick, jeering tones died into silence, something was thrust under Dick's nose, which reeked with a nauseating odor.

He reeled, his senses swam. In vain he fought the influence of the stupefying drug. Swiftly he fell into insensibility. For a single instant Thon's clear, undaunted voice checked his rapid narcosis.

"Good-by, Dick!" she called. "I loved you!"

With the beginning of a hoarse curse from Garo Nark ringing in his ears, he fell into complete insensibility.

CHAPTER XIII

The Derelict of Space

DICK woke in utter darkness. Midos Ken had laid a hand on his shoulder. He sat up wonderingly, dropped back with a groan of black despair when he recalled the capture of Thon, with Don and the stone of life.

The horror of their position burst upon him. They were alone in the frozen, rocky wilderness of the Green Star, a score of miles from where the *Ahrora* lay. Whenever the tenebrous pall of midnight lifted, the monsters of cold flame would be abroad to search for them. He knew that their drugged sleep had lasted many hours. Garo Nark must have Thon, and Don Galeen, and the precious crystal of life fastened inside his ship, secure from rescue.

"Looks as if Garo Nark has beaten us," Dick groaned.

"We have one chance," Midos Ken told him. "If we can make it back to the *Ahrora*—"

"But we have no clothes, no shoes. And it must be twenty miles."

"I know. It will be hard. But we are both young men again—we have the fresh fire of life in our veins. The darkness may hold for several hours, yet. So long as it does, we will be protected from the cold and from the monsters. It is the only chance—"

"All right," Dick cried. "It looks hopeless. But count on me to the bitter end!"

They started down the side of the mountain.

The hardships and difficulties of that journey were incredible. The rays of the wondrous crystal had made supermen of them—otherwise they must have died in that mountain wilderness, or fallen victims to the monsters of frozen light.

Hour after hour they stumbled forward, through utter blackness. They were not cold—then; the ether-less space did not carry heat from their bodies.

But the rocks were sharp; their feet were cut to ribbons before they had gone a mile. Each step brought almost insupportable agony. Sometimes Dick lifted his feet, and felt their tortured soles with his hand. He could see nothing, of course. But his fingers came away sticky with warm blood.

When they came to a smooth patch of snow, it was comforting to walk across its comparatively soft surface.

Midos Ken's hearing was almost uncannily acute. He was able to judge the distance and contour of an object by its echo. With this amazing faculty, he could follow the trail they had made in coming up the mountain side from the *Ahrora*.

Dick had no idea how long they were in coming down the mountain. One's sense of time does not operate when the mind is tortured with pain. It seemed to him that each step took minutes, that it was a bleak eternity since he had stood with Thon before the crystal of life.

They were a mile from the *Ahrora* when the light came back.

Despite the faintness of it, it was almost blinding to eyes used to total darkness. For a minute or so Dick blinked, stumbling along after Midos Ken, who had known of the change only by the sudden chill that smote into their unprotected bodies. Then Dick could see.

He saw the massive boulders looming about them, dark, faintly gleaming with green radiance. He saw the occasional patches of shining snow, and the vast, desolate sweep of the weird desert to the south of them, shimmering with fantastic emerald radiance. He saw the rugged line of peaks behind them, rising slightly luminous against the green-black gloom of the glacial sky.

And he saw the flier, a tiny red cylinder lying among the huge gleaming boulders, far ahead of them.

With the passing of the darkness, the air became suddenly intensely cold—numbing, bitter and paralyzing. Dick took the lead, broke into a run, guiding Midos Ken by the hand.

They ran desperately over the radiant green snow. Their breath formed white clouds, and froze into particles of ice that congealed upon their bodies. At first their bleeding feet left red prints in the green snow. Then they were too cold to bleed.

The air they breathed in great gasps seemed to sear their lungs.

Their bodies felt stiff, numb, as if clothed in unfeeling armor.

And the horror crept slowly upon them as they ran; the vertigo of helpless, endless falling, of falling through abysses of chill blue light, where obscene, writhing monsters swarmed, clinging to them, sucking away their life.

The cold penetrated with numbing, stiffening lances. The paralysis of cold and of unexplicable horror crept upon them. Hands and feet became numb and dead. And the numbness crept up their limbs.

The last of their run was an incoherent nightmare to Dick. He could walk upright no longer. He crawled upon hands and knees. Sharp rocks cut his naked skin, but it did not bleed. Midos Ken crept along behind them.

Then the red wall of the flier was above them.

Dick pulled himself up to it, hammered futilely on it with his hands. They were too stiff to respond to the impulse of his will.

In a gasping voice, Midos Ken sang out the series of notes which operated the mechanism. The massive door swung open. With a last desperate effort, Dick drew himself inside. He remembers trying blindly to help Midos Ken get in.

Then he lost consciousness.

When he woke, he was warm again—the automatic heat control in the *Ahrora* kept the air constantly at the proper temperature. Midos Ken was lying beside him in the floor of the corridor. He had been able to clamber inside and close the door.

A strange figure, skin cut to ribbons, covered with dried blood. It seemed hardly possible that it could be alive. But Dick could see the regular rise and fall of the chest as it breathed. And he was in a similar condition.

Presently he roused Midos Ken. They found antiseptic and healing drugs, among the supplies, and covered their wounds with these. Neither of them was able to walk upon his feet—the flesh had been cut off them to the bone. They crept about the flier on hands and knees. But the miraculous vitality that had streamed into their bodies from the stone of life still animated them. Their torn feet, under Midos Ken's medical care, healed with amazing rapidity. The time of their exposure to the cold had been so short that no parts of their bodies were seriously frozen. In a surprisingly short time they were restored to health and strength.

Only a few hours after they had recovered consciousness, they crept into the bridge. The red needles of the detectors spun uncertainly; Nark had taken the stone beyond their range. Dick tested the K-ray generators, and found them functioning with full efficiency. He drew himself up by the control stand, and drove the *Ahrora* out into space under full power.

The Things of Frozen Flame must have been disorganized by the loss of the catalyst of life. They may have thought the *Ahrora* deserted. At any rate, it seems that they had set no watch over her. The little flier sped out into space, unopposed by the beings of the Green Star.

Dick brought the ship to rest when the Dark Star and the Green Star were but two faint points of light in the Stygian void.

For many days they lay there, resting, until their wounds were healed, so that they could walk again. Those were terrible days to Dick, days of hopeless anxiety, of feverish pain that was more than half mental distress on Thon's account.

As they waited, they planned.

"I THINK we shall be too late," Midos Ken said many times. "Too late to do anything for Thon and Don Galeen. But we can get back the catalyst. You will take the stone of life back to mankind. And I am going to die. I am going to ride the Dark Star to a flaming doom, and rid the universe of the pirate planet!"

"You don't mean that—that you are going to sacrifice yourself?" Dick had cried. "I won't let you do that!"

"Yes," the scientist had told him, solemnly. "I am going to take the Dark Star down to death with me. I am blind; life holds little joy for a blind man. I have lived only to find the secret of life for man. I have found it. I am ready to seek the merciful door of death. And I shall take the Dark Star through it with me."

On the day that they were able to stand upon their feet again, they drove the *Ahrora* down to the pirate planet. This time they did not land in the mountains. They entered the broad, bright belt about the planet's equator, where its people lived in the warmth and brilliance of innumerable atomic weather-control machines.

"Take us to Nuvon, the capital of the pirates," Midos Ken told Dick. "Find the crystal palace of Garo Nark, and drive the flier into it through the arch. We will land before his throne!"

Dick found the patch of brighter light that marked the city of the pirate emperor, drove the flier down toward it. He picked out the palace of Garo Nark,

standing upon a hill in the center of the city. It was a building of gorgeous, barbaric splendor, a colossal dome of yellow gold, and long wings roofed with glistening, snow-white marble. The walls were of emerald crystal, and there were long colonnades with colossal pillars of burning ruby.

He sent the little flier through the high arch of the entrance, into that vast throne room, which he had seen twice before, once on a television screen, once when they had come to treat with Garo Nark. There was the golden floor, the emerald walls, with deep-set ruby panels inlaid with fantastic designs in sapphire and silver and jet. There was the pure white, vaulted ceiling.

He landed the *Ahrora* on the floor of glistening yellow metal, before the high throne of blazing purple crystal.

The purple throne was empty.

Hundreds of guards stood about the walls, holding the black tubes of the El-ray. Leveling them, they rushed forward, bathing the flier in flickering violet rays, that shimmered harmless on the red armor of neutronium.

At a low word from Midos Ken, Dick swung a handle. The huge projector mounted in the flier revolved, sweeping the golden floor with a broad beam of intense, hot violet. The black-clad guards were destroyed like toys of ice before a furnace blast. Wisps of white steam drifted toward the high, white ceiling.

"Find the detector," the old scientist told Dick. "The red needle will show where the stone is hidden. We will find it. You will fly with it back to humanity. And I will drive the Black Star to its end."

"But Thon!" Dick cried. "We must find her! And Don Galeen."

"We are too late for that," Midos Ken said grimly. "You don't know Garo Nark as I do. They may be still alive—I fear that they are! If so, a swift and merciful death is all they desire. And I will give it to them! But find the detector."

Dick took the little instrument down from its place on the wall, leveled it. The needle spun uncertainly, failing to come to rest in any definite position.

"It doesn't register!" he cried. "It spins uncertainly—just as it did when we last used it on the Dark Star, after Garo Nark had carried off the stone."

"Doesn't register?" Midos Ken echoed in dismay.

For a long time the old, blind man stood in despair.

"My life has gone for nothing," he groaned at last. "The stone is not on the Green Star, for we tried the detector before we left. It is not here. Garo Nark must have destroyed it. Bathed himself and his friends in its life-giving rays, I suppose, and then turned an El-ray on it, for fear that humanity would learn of it and take it from him."

For a time he was silent again.

Then he burst out fiercely. "The toil of my life is lost! But I can die more usefully than I have lived. I can free the universe from the Dark Star and its degenerate pirate hordes!"

"How?" Dick asked in dazed wonder.

"You remember the enormous K-ray generators which move this planet through space like a ship? I am going to find them, seize the controls, and send this world crashing into the Green Star. True, I am a blind man, and alone. But the pirates have no weapons that can penetrate my electronic armor. I have instruments which will lead me to the great generators—I made rude triangulations as we were coming in; they are located not a mile from this palace.

"And you, Dick, are free to go back to the world of man, and tell the story of our adventure. Perhaps you can forget, and lead a useful life. I am sorry to part from you, my boy. I love you. I had hoped that you and Thon—"

The old man's voice broke suddenly. He set his lean jaws, and composed his face again. Himself almost overcome, Dick took his hand, gripped it hard.

Quickly, Midos Ken turned from the room. Dick followed him, saw him go down the corridor to his stateroom, and emerge in a moment. The roseate nimbus of the electronic armor had appeared about his straight body, and he was fitting a strange little instrument into his pocket.

Deliberately, yet swiftly, he swung upon the door of the flier and stepped out upon the golden floor of the palace.

Suddenly Dick found his voice. "Stop!" he shouted, rushing forward. "You mustn't do this. It's insane!"

He grasped at the scientist's shoulder. Electric force struck him, hurled him back to the floor. The massive door of the flier swung shut before him with cold finality.

He staggered to his feet, put his hand to the button that opened the door. Then, realizing that he could never make Midos Ken change his determination, he hesitated. In a moment he went up the corridor to the bridge, where he could look out.

Midos Ken had just reached the arched entrance to the great hall. He was going out into the streets of Nuvon. A group of men were scattering wildly about him, while he held a little cylinder of topaz-yellow in his hand. Several had fallen before him.

It was a strange figure—a tall, straight body, vigorous with the new youth from the stone of life, clad in a simple, dark-green garment, and wrapped in a wondrous nimbus of rosy flame. He was striding forward confidently, despite his blindness. One hand held the little bar of yellow crystal before him. Another was grasping a strange mechanism, which, Dick supposed, would guide him to the enormous K-ray generators which he sought.

He passed out of sight around the emerald wall. . . .

Out of sight, but not out of history. . . . For we know what he did. . . .

It was several minutes before Dick moved the *Ahrora*. The fire of his life was dead. His light had gone out. He was heavy with hopeless despair. With Thon gone, and Don Galeen, and old Midos Ken, his interest in existence was ended. There was nothing left for him to do but to return to the inhabited universe and write the record from which this history is made.

He did not move the flier until a party of men rushed into the magnificent throne room where it lay, pushing a strange weapon before them. That roused him from his lethargy of despair. He swung the powerful El-ray of the flier upon them, sent them and the machine hissing into a dense cloud of steam.

Then he drove the *Ahrora* out through the high arch, and up into the black sky above the city of Nuvon—drove far out into the midnight of space, until the Black Star and the Green Star were two specks of light, distinguishable one from the other only by color.

He stopped the flier, let her drift motionless in space while he watched. His black despair was too deep to permit a keen interest in the amazing spectacle he saw. He watched dully, without awe and without wonder. It seemed unimportant, an inane anticlimax to the tragic end of the great adventure. It did not matter.

But it was wonderful enough. He had not been watching for an hour when the point of light that he knew was the Dark Star moved visibly—toward the Green Star. Midos Ken was succeeding in his colossal attempt to destroy two worlds, at the cost of his life.

The Dark Star moved swiftly, with ever-increasing speed.

Even so, it was hours before the two planets came together.

Dick was looking when the fleck of white light and the fleck of dull green became one.

There was a sudden flare-up of white incandescence.

From the distance, it looked insignificant as the striking of a match. But Dick knew that both planets had been turned to white-hot vapor by the heat of their impact. In a single instant, all living things upon them had been consumed by the inconceivable heat of the cataclysmic collision.

"At least," Dick muttered, "it was merciful!"

HE watched for hours longer, as the little sphere of white gas began to lose its heat and contract a little. Its vivid white dimmed a little, reddened.

At last he stirred and picked up the little detector which he had dropped on the floor of the bridge, upon the discovery that the stone of life was not on the Dark Star. He had let it fall in the dismay of the moment.

Now he balanced it idly on his hand, carelessly watching the scarlet pointer. It vibrated, then steadied, became fixed, pointing off into the black void of space.

At first it did not seem strange to his despair-deadened mind that the needle should do this. The import of it came to him slowly. Then he shouted in wild astonishment:

"The stone out here! It can't be!"

Great weakness came over him suddenly. His limbs trembled. Sweat broke out upon his brow. His heart beat hard and fast, up in his throat. He felt a curious dryness of the tongue. His breath came in quick, short gasps.

"The stone! The ship! Garo Nark!"

He almost babbled the words. His brain was a mad whirl of fear and hope. A storm of emotion had shattered the tragic calm of his despair. If the stone were out here in space, it must be in Garo Nark's ship. And if the ship were here Thon and Don Galeen might still be in it. Might be safe!

A slender hope. It swept over his body like a swift flame, quickly quenched by a black flood of fear.

He fought to control his trembling limbs. Holding the little indicator in one hand, watching the red needle, he sought the control lever of the flier, and swung it about until the bow was pointed in the direction the scarlet needle indicated.

Then, eyes on the telescope screen and the red pointer, alternately, he pressed down the white cylinder of the accelerator. With the full power of the K-ray generators on, he flashed through space, following the scarlet needle.

Mad hope and crushing fear racked him.

Minutes went by—minutes of tense, throbbing anxiety—minutes that seemed doubt-laden years—minutes of straining attention, of feverish hope, of blasting fear.

Then he saw the flier.

It was almost invisible; he would never have discovered it without the red pointer to guide him. He saw it first by swinging about, so that it came between him

and the little, reddening sun which was all that remained of the two planets Midos Ken had sent hurtling together in cosmic cataclysm.

A little black cylinder against the dull red disk of light.

He flashed down to it, brought the *Ahrora* up beside it.

The walls of the flier were black, unbroken. Her navigating lights were dead. No faintest gleam came from the ports, or from the observation windows of the bridge. She was not moving. There was no purple glow about her stern; the K-ray generators were stopped.

The ship seemed deserted, a derelict of space.

But the red needle showed that the precious stone of life was inside her.

Dick's fresh hope fell low. There was no sign of life about the ship. Had the Things of Frozen Flame contrived to reach out into space and annihilate those aboard her? Or had some accident stopped the ventilating system, or released poison gases, or destroyed the power plants?

He maneuvered the *Ahrora* to the black side of the huge vessel, left it to be held by gravitational attraction. He hurried to the store-room, donned an air-tight space suit, fitted with atomic heating pads, oxygen-generator, and air-purifier.

In feverish haste he selected a small El-ray tube, opened the massive door of the flier, and walking across the hull of the black flier, held to it by its gravitational pull, he selected a site of operations.

A movement of the sliding silver ring on the little black tube produced a brilliant cone of violet light flickering from its tip. He brought the tongue of flame against the black wall of the flier.

The black, light-absorbing pigment of the invisibility compound vanished in a hissing wraith of steam. Beneath was white metal, and the metal was swiftly cut away by the ray. Clouds of steam swirled up, condensed in the cold of interstellar space, become a ghostly cloud of snow, hanging above the side of the vessel.

Around and around Dick moved the cutting ray, controlling it with impatient fingers. He was cutting a two-foot circle, leaving a little uncut section on the side opposite the place where he stood. He worked in tense, grim haste, feverishly excited.

Abruptly there was an explosion beneath him, as the pressure of the air within the flier blew out the disk of metal, which was still attached on one side by the section he had not cut. The blast of air caught Dick, sent him spinning many yards out into space. As he drifted slowly back to the black hull, it was freezing about him, in a white mist of tiny crystals.

He dropped through the hole, into the hull of the flier.

Like most interplanetary ships, it was divided into many compartments, with air-tight bulkheads between. Air-locks connected them, so that it would be possible for men in space suits to enter compartments which had been broken, to repair leaks made by meteors or otherwise.

This compartment seemed to have been part of the quarters of the crew. It was crowded with berths. In them were many dead men. Dick examined one of them. and recoiled in horror.

The man in the bunk had not died from suffocation, because of the air's escape through the hole in the ship's hull which Dick had made; his first supposition was wrong. The man had been dead many days.

The flesh was a ghastly yellow-green.

He looked at the still figures in the other berths.

They were the same. Skeletons, covered with decaying, yellow-green corruption.

A ship of death!

He knew now why it had been dark and silent, with dead lights and extinct generators. A weird plague had wiped out the crew. Some hideous new bacteria, he supposed, which had been picked up on the Green Star.

His hope became despair again.

He passed through an air-lock, into the corridor that ran the length of the vessel. There he stumbled across three more skeletons.

He hurried to the bridge, in the nose of the ship.

The weird plague had been there.

A score of men were lying dead among the instruments. He found Garo Nark—distinguishable only by the crimson garment that covered his remains, and a skeleton very meagerly covered with the sickening corruption, he thought, must be Pelug's, the green-eyed, scraggy individual.

Dick left, horror-stricken.

He searched the ship from nose to tail.

The plague had visited the sumptuous quarters of the officers, the dining rooms, the galley, the forecabin, the storerooms, the holds, the El-ray turrets.

At last he reached the generator room, in the tail of the ship. The air-lock leading to it was sealed. It resisted his efforts to break through. Once he paused in despair. Then, because he had found no remains that seemed to be those of Thon Ahrora and Don Galeen, he resumed the task, cutting away the fastenings of the air-lock with his El-ray tubes.

The huge door swung open at last; he stumbled through into the generator room. A narrow space, crowded with the huge bulks of the K-ray generators which drove the vessel.

AS he entered he heard the clatter of a dropped tool, a sudden exclamation.

A cry in the voice of Thon Ahrora!

He ran across the room.

And he found Thon, and Don Galeen, startled at his sudden entrance and not recognizing him in his bulky space suit. They were clad in greasy garments, and black with motor oil. Don was tugging on a wrench, and Thon had dropped her tool upon Dick's entrance.

They had been repairing some huge, delicate mechanism, which seemed to have been wrecked by an explosion.

They stared at Dick.

Swiftly he loosed the screws which held the grotesque helmet of the space suit, lifted it from his head.

"Dick!"

Thon cried out his name, in a voice so keen, so poignant with joy, that it was painful.

She ran across to him, threw her arms about the heavy armor that covered him, stood on tiptoe, and kissed his face.

Don Galeen dropped his wrench, and came to shake Dick's armored hand, tears of relief and joy in his keen brown eyes.

"How did it happen?" Dick demanded. "How did you come to be here, in a ship of the dead?"

"Ask Don!" Thon told him.

"First tell us how you came here," cried Don, the greasy adventurer. "And where is Midos Ken?"

Thon was watching Dick's face.

"Is he—dead?" she asked slowly.

"Yes," Dick told her. "We got back to the *Ahrora*. When we were well, we flew to the Dark Star. We did not find you—or the stone. Midos Ken used the K-ray generators to drive the planet into collision with the Green Star."

"He had done his work," Thon said, controlling her evident sorrow and brushing tears from her eyes. "He was ready to die, and he died as he chose."

"The stone of life is here," Dick said. "The detector showed me the way."

For answer, Don Galeen bent beside the great machine, lifted a shining case. He drew back the lid, to reveal the stone of life lying in soft wrappings within. The magnificent crystal of many prismatic colors was alive with wondrous fire.

"The greatest treasure of the universe!" he cried. "It will give deathless youth to all who desire it!"

"And now, my question!" Dick insisted.

"Well," Don Galeen began modestly, "you know I was once a driver of beasts of burden on the inner planet of Sirius. That is where I learned to smoke the *tian*. There is a sort of fungus in those hot jungles that attacks the bodies of men, or of any living thing from other planets. Only the plants and animals that thrive in those jungles are immune to it.

"And the *tian* is hostile to those hideous, swift-growing moulds. Its use gives immunity. We had to use it there, to keep from turning into heaps of greenish corruption. That is why I use it—or why I began, at least." He grinned.

"And I have always carried a few of those spores with me—spores of that deadly fungus—in a place where they are not likely to be found when I am searched. A useful trick we learned for protection against certain enemies that were likely to attack our pack trains.

"So when Nark had us aboard, and safely off into space, I crushed my little capsule of the spores. The seed of that swift-growing fungus was free in the air. The ventilating system carried it through the flier. Thon and I, having recently smoked *tian*, were immune, of course.

"In five minutes, almost before they realized what had happened, the men were falling dead.

"Nark discovered it too late to reach us—he had been saving us for the celebration of his return to the pirate planet with the stone of life. But he was able to press a button which wrecked this K-ray generator.

"We brought food and water in here, and sealed the air-lock—the men the fungus brought down are not pleasant company. And we have been working to repair the generator that Nark smashed for us."

Dick said nothing. But he seized the hand of the resourceful adventurer of space, and crushed it in his armored grasp.

Then he stepped back, and looked from one to the other of the two before him—Thon Ahrora, slender, lovely being—Don Galeen, strong, tanned, calm, invincible.

"Tell me, Don," Dick blurted out awkwardly, "do you love Thon?"

"Love Thon?" the giant echoed. "Of course!" He paused, staring soberly at Dick—then grinned. "Like she was my own little sister!"

And he burst into loud guffaws of laughter at Dick's downcast expression at the first statement and his relief at the second.

In a moment he stopped his merriment to add, "I love you, too, my lad. And Thon loves you—she told me so herself. And it isn't hard to guess that you love her. And I'd love nothing better than to see you happy together!"

Again he burst into roaring laughter.

Dick stepped up to Thon, laid his armored hands upon her slim white shoulders, and looked into her deep, warm blue eyes.

"Then it's true?" he asked her breathlessly.

"It's true. I love you, Dick," she told him.

And disregarding the fact that Dick was encased to his chin in an air-tight fabric of stiff armor, they embraced.

* * *

LITTLE more is to be told of the story which I have gleaned from the voluminous notes sent me by Richard Smith. They will shortly be published in full, of course, under the title, "A Vision of Futurity." Only a few more incidents may be mentioned here.

Dick returned to the *Ahrora*, brought space-suits which Thon and Don Galeen donned to go aboard the little flier. A few months later they were back on the earth.

The catalyst of life was placed safely in the hands of a group of scientists, who will supply the means of immortal youth to all the peoples of the far-flung planets of

the Union of Man. The priceless gift of Midos Ken will be free to all.

Don Galeen tired of terrestrial life after a few months. He borrowed the *Ahrora*, secured a fresh supply of his inevitable *tian*, adventured off to explore the quadruple star—the group of four suns—toward which he had been cruising when he discovered the Green Star. Again he is adventuring in worlds where man has never been.

Dick and Thon Ahrora are married, living together in the city of silver towers, where Dick entered the world of futurity. At the time of Dick's last writing they had a son and daughter, whom they have permission from the authorities to rear in their own home. It is, Dick says, a huge undertaking, but one which he is not going to shirk.

Thon Ahrora still indulges in a little scientific research, by way of recreation. She has developed her father's time machine to a greater degree of perfection—the machine by which Dick was drawn into this world from our own age, through a fourth dimension.

She is able to cause the machine to hurl small objects back through space and time, to stop at any part of the world, and at any point and time, which may be determined beforehand. It is in this manner that the little case found its way to my library table—the little black case of the strange, flexible material, which contains Dick's notes, and one of the little statuettes of him, which was made in the wondrous far futurity, by the lovely Thon Ahrora.

THE END

Luvium

By A. R. McKenzie

(Continued from page 719)

Into the housing station we went without a fear. It was empty; absolutely barren of people. My hopes soared to the skies. Firm in my belief that all was in perfect accord with this break for liberty, I swung Votta into a chair, kissed her and set out along the very route that some months before I had traveled with Latvu as my captor. Soon we glided to a stop at the end of the line. The automatic controls brought the halt that I might have missed, had it been up to me.

Strapped to the wall were the many compact oxygen liberators of the mine workers. Taking three of these for our trip through the caves, we set out merrily without a care in the world. We would soon be safe.

As we passed the spot where Carr had fallen, we ceased our fun-making. If he had only lived to see that which I had gazed upon, what wonderful ideas he might have brought back to the upper world! But it was not he who had lived; much could I tell, but little could I explain. Votta and Latvu might help considerably with their lifelong knowledge, but they were not Carr.

But we must return. We hurried on, lest we be overtaken. As we rounded the final turn, my heart sank within me and for a moment I was stunned. Across the opening that should have been there, was a gigantic steel door set in a frame firmly riveted to the wall. The barrier itself was fastened with a series of intricate locks that I could not have solved in a year's time. My companion, however, burst into peals of laughter.

"Look, oh surface man, how we of Luvium open such locks," and his nimble fingers raced over the dials, pro-

ducing a series of clicks that spoke of the shooting of bolts.

"Many are such in Luvium," he explained, "for often have our tunnels been broken through by ambitious sister cities. In each mine are such portals equipped with combination locks and all are like this.

"Look, it is open!"

It was! From within came the foul air of the caves, making it necessary to don the oxygen masks. I hesitated to enter, for fear of some trap laid to destroy us. It would not do for the three of us to blunder on some such device, so I sent the man to the tunnel's end to watch for any who might have followed us. Leaving Votta seated on the sill, I entered cautiously, ever alert for some hidden snare. My brilliant radium flash brought everything into startling relief. There was nothing to arouse my fears as far as I went. I cared not to leave the two for any length of time and so it was that I had turned to retrace my steps when a scream of terror fell full upon my ears. My blood ran cold! I heard the steel door clang shut as I raced back.

But I was much too late! One by one the bolts shot home as I flung myself against the massive portal. It was useless; my puny efforts were of no avail. As I stood there, helpless, knowing not where to turn, a small section of the door slid back to reveal the ugly countenance of that hated noble, Zemd. His yellow teeth were bared in a triumphant leer, and long and loud was his grating laugh of victory.

Beyond him in the tunnel, two bejeweled warriors held the struggling Votta. Latvu was nowhere to be

seen. How had they crept up on us to carry out their scurvy trick? I never knew. Zemd suddenly broke the silence and dramatically played his final card.

"And now, brave Adu," he taunted, "go back to your mythical kingdom from whence you came. Clever are you, but infinitely more thorough is Zemd. To ease your mind I will explain, so that even you can understand, how the greatest of nobles was able to do that which even the Dedul, himself, could not.

"Your most colorful attack on the Palace was anticipated, though not at such a time. We give you credit for attempting the impossible. I feared for the safety of dear, beloved Votta, with so many of your loyal knaves raging through the mighty fortress.

"I marvel that you failed to note the fact that no one was courteous enough to meet you at our entrance. Apparently you did not. You chose to walk straight into our hands with unseeing eyes. I congratulate myself.

"At any time could we have killed you, but it was my supposition that you would be infinitely more pleased to live and know that Votta was safe. As you wander through the endless rifts of the Voilt, think often of us, and wish us well on our love match; and as you die, racked with the tortures of hunger and thirst, make your last breath a prayer for our success in——"

The man might have continued his baiting of me indefinitely had it not been for Votta. She jerked herself from the grasp of the unexpected guards and rushed to the hateful barricade and poured out her song of love.

"Adu, my own," she cried, "I love you. Always will I love you."

With a growl, the enraged noble seized the girl and hurled her back upon his fellows. He whirled on me with his face twitching horribly, but the words, trembling on his lips, were never spoken. Down the corridor raced a giant warrior shouting his cry of warning.

"Zemd, My Lord," he shrieked, "the Dedul calls for you. From a break in the Mines of Bodium come the Luvaians. Even now they march upon the Palace, pouring from their spacious bore in countless numbers. Baku fears for the city, for the uprising has greatly reduced our force. Hurry, for every man is needed."

With that the panel snapped shut and I was left alone. For hours I hammered on that stubborn door, until my senses left me and my mind tottered. How I stumbled back through the caves and the two cities to the surface I do not know. It was night when I rose from the side of our main shaft to Zandu to take note of my surroundings. There remained only the barest signs of the long, weary hours of excavation that had uncovered the city.

I wandered for days in the trackless desert until a friendly caravan bound for Siwah picked me up, nearly dead of thirst.

In Alexandria I exchanged the priceless jewels for my passage to the states and to you.

THAT was his story. True or not I find myself, time and again, living in my dreams his fascinating adventures. A year has passed since that night, and save for a cablegram or two telling of his success in outfitting an expedition, I have heard nothing from him.

Often I wonder if he has once again dug his way to old Luvium and if he succeeded in wresting his love from the hands of Zemd. Or did he find that the raiding party from Luva had completely destroyed the city? Did he discover that Latvu had actually played false at the fatal moment and allowed his former master to complete his fiendish scheme?

Or did he trek out into the desert to find a jealous sand completely hiding any trace of the forgotten city of Zandu?

Often have I wondered.

THE END.

Automaton

By Abner J. Gelula

(Continued from page 705)

cious. Go immediately to my Office in the Treasury." The police lieutenant, whom she addressed, heading a squad of men carrying high powered rifles, made their way to the office.

Opening the door, they found the correspondent lying on the floor. With a sigh of relief, she noticed that the man was breathing. Apparently the blow was not as serious as she thought at first. The Automaton stood nearby. Its malignant red ray sized up the situation in a second and, without hesitation it strode rapidly toward the Lieutenant. Leveling the pistol he held in his hand, he aimed at the ray and fired. The glow disappeared, but the machine continued to walk forward. The policeman nimbly stepped aside and allowed the metal brute to make its way through the door, to the steps ahead. Without halting a moment, it missed its footing at the first step and plunged headlong down the flight, smashing almost completely the contents of the metal casing. It had concluded its existence after twenty-three years. Its first failure to calculate correctly brought its doom!

THERESA shuddered as she entered the State Hospital building. A Machine indicated the room she sought. She knocked at the door. A cheery "Come In" greeted her. She turned the knob and the door opened.

An old man sat in the chair. An old man with a young face. He arose. A lady had come to see him. Visitors were rare, especially feminine visitors. Theresa stepped just inside the door. She scrutinized the face of the man. Slowly, slowly the memory of her old sweetheart found a likeness in the features she gazed upon.

"Alan!" She moved another step forward.

That voice! It was hers! It was Theresa! She had come to him. He hesitated. He squeezed his hands. Maybe it wasn't real. Perhaps it was only a vision! "Theresa," he cried, as he grabbed her in his arms, "you've come back to me—you've come back to me!"

"Alan, forgive! I love you so!"

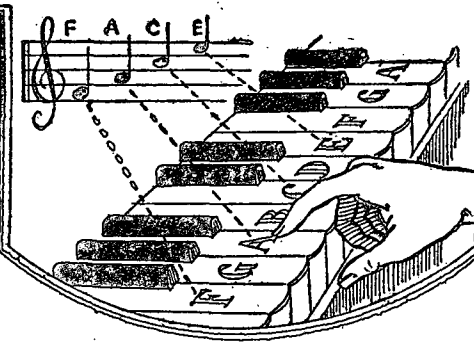
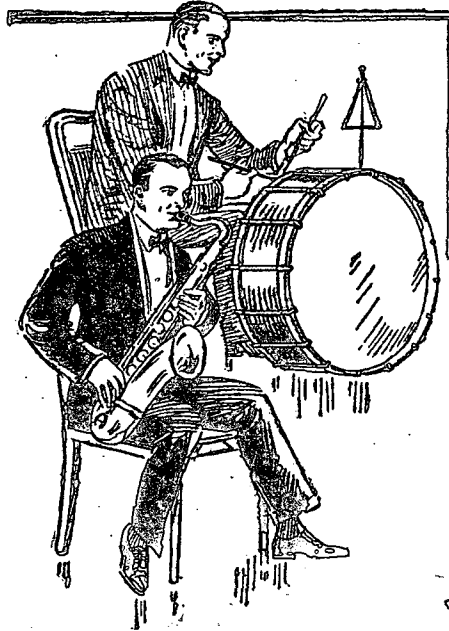
The cries of the newsboys calling "Wuxtry! Queen Theresa resigns! Queen Theresa to be married!"

Alan and Theresa has found each other again, and the excited news cries faded into the distance.

THE END.

Half a Million People

have learned music this easy way



You, too, Can Learn to
Play Your Favorite Instrument
Without a Teacher

Easy as A-B-C

YES, over half a million delighted men and women all over the world have learned music this quick, easy way.

Half a million—what a gigantic orchestra they would make! Some are playing on the stage, others in orchestras, and many thousands are daily enjoying the pleasure and popularity of being able to play some instrument.

Surely this is convincing proof of the success of the *new, modern method* perfected by the U. S. School of Music! And what these people have done, **YOU**, too, can do!

Many of this half million didn't know one note from another—others had never touched an instrument—yet in half the usual time they learned to play their favorite instrument. Best of all, they found learning music *amazingly easy*. No monotonous hours of exercises—no tedious scales—no expensive teachers. This simplified method made learning music as easy as A-B-C!

It is like a fascinating game. From the very start you are playing *real* tunes, perfectly, by *note*. You simply can't go wrong, for every step, from

beginning to end, is right before your eyes in print and picture. First you are *told* how to do a thing, then a picture *shows* you how, then you do it yourself and *hear* it. And almost before you know it, you are playing your favorite pieces—jazz, ballads, classics. No private teacher could make it clearer. Little theory—plenty of accomplishment. That's why students of the U. S. School of Music get ahead *twice as fast—three times as fast* as those who study old-fashioned plodding methods.

You don't need any special "talent." Many of the half million who have already become accomplished players never dreamed they possessed musical ability. They only wanted to play some instrument—just like you—and they found they could quickly learn how this easy way. Just a little of your spare time each day is needed—and you enjoy every minute of it. The cost is surprisingly low—averaging only a few cents a day—and the price is the

same for whatever instrument you choose. And remember you are studying right in your own home—without paying big fees to private teachers.

Don't miss any more good times, learn now to play your favorite instrument and surprise all your friends! Change from a wallflower to the center of attraction. Music is the best thing to offer at a party—musicians are invited everywhere. Enjoy the popularity you have been missing. Get your share of the musician's pleasure and profit! Start Now!

Free Booklet and Demonstration Lesson

If you are in earnest about wanting to join the crowd of entertainers and be a "big hit" at any party—if you really *do* want to play your favorite instrument, to become a performer whose services will be in demand—fill out and mail the convenient coupon asking for our Free Booklet and Free Demonstration Lesson. These explain our wonderful method fully and show you how easily and quickly you can learn to play at little expense. The booklet will also tell you all about the amazing new *Automatic Finger Control*. Instruments are supplied when needed—cash or credit. U. S. School of Music, 8611 Brunswick Bldg., New York City.

U. S. SCHOOL OF MUSIC
8611 Brunswick Bldg., New York City

Please send me your free book, "Music Lessons in Your Own Home," with introduction by Dr. Frank Crane, Free Demonstration Lesson, and particulars of your easy payment plan. I am interested in the following course:

Have You

.....Instr. ?.....

Name
(Please Write Plainly)

Address

City..... State.....

What Instrument for You?

Piano	Piccolo
Organ	Guitar
Violin	Hawaiian Steel
Banjo (Plectrum, 5-String or Tenor)	Guitar
Clarinet	Drums and Traps
Flute	Mandolin
Harp	Ukulele
Cornet	Trombone
	Saxophone
	Cello

Sight Singing
Voice and Speech Culture
Harmony and Composition
Automatic Finger Control
Piano Accordion
Italian and German Accordion
Juniors' Piano Course

DRAWING turns INK to GOLD

THE small crude sketch (1) was drawn by Herschel Logan before he had Federal School training. The large drawing of Lincoln (2) shows his recent work. Note the improvement. Today his drawings are seen in National Exhibits. Recently he made \$100.00 over his regular monthly salary. He says, "Any average fellow with the same instruction should be able to accomplish similar if not greater results."



Many Earn \$500 Monthly

Opportunities for artists have never been better. Publishers pay millions for illustrations every year. The Federal Home Study Course has been prepared by over fifty of the Nation's leading artists. If you like to draw, cash in on your talent. It's easy to learn the "Federal Way." You may have talent lying dormant in you, just as Logan had. Our Vocational Art Test will find that out. Send your name, address, age and occupation and we will send you the chart free. Act today.



Federal School of Illustrating

11441 Federal School Bldg., Minneapolis, Minn.

BECOME AN EXPERT

ACCOUNTANT

Executive Accountants and C. P. A.'s earn \$3,000 to \$15,000 a year. Thousands more are needed. We train you thoroughly at home in spare time for C. P. A. examinations or executive accounting positions. Previous bookkeeping knowledge or experience unnecessary. Training given by C. P. A.'s. Write for free book, "Accountancy, the Profession That Pays," and learn about opportunities in this growing, profitable field.

LaSalle Extension University, Dept. 11464-H, Chicago
The School That Has Trained Over 1,100 C. P. A.'s

MONEY FOR YOU AT HOME

YOU can earn good money in spare time at home making display cards. No selling or canvassing. We instruct you, furnish complete outfit and supply you with work. Write to-day for free booklet.
The MENHENT COMPANY Limited
248 Dominion Bldg., Toronto, Ont.

LEARN BY LISTENING Telegraphy

Morse or Continental!
Step into this interesting—uncrowded—HIGHLY PAID Profession. Become a trained operator in Morse or Radio Code, easily, quickly, at home, with TELEPLEX, the Master Teacher. Used by the U. S. Government and leading schools.
Write for Folder E-12

TELEPLEX CO.

76 Cortlandt St., New York, N. Y.
Learn AT HOME
With

Teleplex



\$1900 to \$2700 STEADY

Mail Carriers Postoffice Clerks

Mail Coupon Today Sure

COUPON

FRANKLIN INSTITUTE

Dept. H-177, Rochester, N. Y.

Size: Rush to me without charge (1) 32 page book describing Government Jobs, (2) List of U. S. Government Jobs now open to men and women 18 to 35. (Tell me how to get a position.)

Name.....
Address.....

In the Realm of Books

A New Burroughs Thriller

"A Fighting Man of Mars," by Edgar Rice Burroughs. Published by Metropolitan Books, Inc., 150 Nassau Street, New York. \$2.00.

HERE the countless Burroughs fans find 318 pages of thrill which we find revealed to us via the Gridley radio wave (see Gridley the hero of Burroughs' intraterrestrial stories). It seems that the narrator of the story enters Gridley's abandoned laboratory and sees a message coming in on the receiver's tape, in the Gridley code, telling the story of Hadron of Haster of the red race of Mars, who having fallen in love with one of its princesses, who is abducted by a prince of a different race, sets out to rescue her. Men of the green race capture him by destroying his flier. He escapes, and with him goes Tavia, a maiden from his own city. He delivers her to her home town, but not being believed, is imprisoned. He makes friends with a fellow captive, Nur An, and together they escape, liberating Nur An's sweetheart, Phao and also Tavia, but they are recaptured and thrown into an abyss, from which they escape after killing a prehistoric lizard. Now they fall into the hands of a fiend, who delights in mental as well as physical torture, but they escape again by means of a cleverly constructed balloon, which finally lands them in an ancient castle belonging to an old scientist, inventor of a disintegrating ray and of a defensive paint rendering the said ray harmless. Both inventions were appropriated by a Martian prince and the poor inventor was exiled. Primed with desire for revenge and hatred for his despoiler, he has invented a paint which makes everything invisible and an aerial torpedo operated by remote control, which he intends to use against the prince, who robbed him. Our hero, Hadron, annexes one of the invisible ships and finally finds the beautiful princess he thought he was in love with. Like many of her sisters on Earth, she only loves riches, spurns our hero and betrays him. He and Tavia are landed in a desert haunted by savage cannibals from whom they escape; then they are rescued by the airfleet of Helium, which makes mincemeat out of a nation which has been disturbing the equilibrium on Mars for ages. They are received on the deck of the flagship of John Carter and Tavia and find that she is a princess of royal blood, which is a pleasant surprise to our hero, who in the meantime has fallen violently in love with said Tavia, whom he supposed to be a slavegirl. This is the approximate outline of the story done in very coarse strokes. Every episode is preceded, surrounded and followed by the most exciting adventures and encounters with strange beasts and stranger people. Virtually, there is not a page without a thrill.

—C. A. Brandt.

Overthrowing Old Traditions

"The Children of Mu," by Janus Churchward. Published by Ives Washburn. \$3.00. An Ethnographic and Geological study.

AT times there is a tremendous output of scientific fiction, all based on Atlantis, the lost continent. Occasionally, an extra audacious writer delves even deeper into the past and presents a story based on Lemuria or Mu, about which even less is known than about Atlantis.

Hundreds of books have already been written about the latter, the best of which still is "Atlantis" by Donnelly. In this book, Donnelly attempts to prove the close relationship between Grecian and Mayan, Egyptian and Peruvian cults, (most of which of course, is pure conjecture) based on Plato's report of a legend, which originated in Egypt.

Along comes Mr. Churchward, with two books: "The Lost Continent of Mu," which is shortly to be reprinted from a privately printed first edition, and "The Children of Mu," and offers what he apparently believes to be ironclad, double-riveted proofs that humanity originated on the lost continent of Mu, which sank with over sixty million people, drowning a civilization over 20,000 years old.

Incidentally, Mr. Churchward throws a few well-known and accepted theories and ditto facts, into the discard.

He maintains, for instance, that man is a creation by a Deity, that he never evolved and never rose from savagery to our so-called high level of civilization. He says that on the contrary, man became a savage again when Mu was lost, etc. But despite all this, I enjoyed his book immensely. Mr. Churchward did not start in life as an ethnographer or archeologist. As a young man, he was sent to India, where he became acquainted with the abbot or rishi of a monastery. With the rishi as a teacher, he studied Naacal, supposed to be the oldest language of the World and together they deciphered and translated Naacal stone tablets claimed to be 70,000 years old. These tablets told of the creation and pointed to Mu as the cradle of Man. This apparently influenced Mr. Churchward's entire life. For a period of twelve years, he studied with the priest-savant and then set out in search for proof all over the world, an unending search evidently, as he is still occupied with it.

Naacal he claims is the key language to all the languages of antiquity; it has been his "Rosetta Stone," enabling him to translate and decipher even the unyielding hieroglyphs of the Mayans, which so far have defied any attempt at deciphering. He even produces alphabets showing Mu, Maya and Egyptian glyphs in their proper rotation. This should produce rousing cheers from the gentlemen who are still fussing around the old Maya temples in Yucatan and other places.

It may be that these scientists are sulking, since the author makes it clear that his books are addressed to the general reader and not to the professional scientist. Mr. Churchward, in his own two books, attempts to trace the somewhat erratic migrations of the human race back to Mu, the Motherland. His findings are presented in a plausible way, and whatever their real value, they show that he must have performed herculean labors.

There are any number of interesting statements scattered throughout the book; for instance, that the civilization of Mu was greater than our own, including knowledge of release of atomic energy, etc., not even to mention flying machines. Also the information that "Quanlan," an ancient Norwegian language, Gallic, the Basque language and a dialect spoken by a small tribe of natives in Nepal are identical, is quite startling, to say the least. These two items should furnish a working basis for some scientific fiction yarns, and to all who have ambitions in that direction, the book is specially recommended.—C. A. Brandt.

DISCUSSIONS

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

A DISCUSSION ABOUT THE BENDING OF LIGHT RAYS

Editor, AMAZING STORIES:

Your magazine has been my constant companion through my latter years of high school and into my first two years of college. Having often felt the urge to write and tell some of your readers what I thought of them and their "science," I have just as often restrained myself with the hope that you would cease to publish their astoundingly incoherent epistles. The climax came, however, when I read E. F. Gervais' letter upon the "impossibility" of invisibility. How you allow yourselves to publish messages from people who have had no training or background for comment upon scientific truths is beyond my understanding. Does not Mr. Gervais know that scientific knowledge extends much farther in a positive direction than his high school physics teaches him? He makes a most irrational statement when he says that light waves cannot be bent by any other means than refraction, for after careful thought (which is an augmentation to our reading of newspapers and scientific periodicals) it is apparent that there are several means by which this may be accomplished without overthrowing any of our natural laws.

First: It is possible to force light to turn corners in the presence of a diffusing agent which, in our world, is air, but which might be any other gas. All of us have seen illumination, although the source of light was not pointed directly at our eyes. The light in this case is not actually bent, as is obvious, but for the purposes of invisibility it might be put to use.

Second: When a ray of light is thrown upon a reflecting surface, it returns with its angle of reflection equal to its angle of incidence. It cannot be disputed that a bending of the light is effected by this method, although it is rather angular and sharp.

Third: As has been ascertained by careful observation, light, in passing a body of great mass, is turned from its course to an appreciable extent. This occurs when the light from some stars pass the sun and cause observers on earth to think that they are in a slightly shifted position.

Fourth: Now to delve into some original theories. When a stream of air passes a solid object, the layer in immediate proximity to the object is slowed down to such a degree that a partial vacuum may be formed behind the object. If light can be conceived of as a stream of corpuscles, as Newton would have had it, it is conceivable that it, too, would be affected and move in curves as its inner layers passed a material of a certain kind. Invisibility could easily be attained by this method if a suitable substance were found.

Fifth: It has been observed by physicists that light thrown in a certain way at a solid sphere would form a dark circle with a bright one within upon a screen placed in back of the sphere. The only suitable explanation for this phenomenon is that the light bends around the solid and forms a bright circular area on the screen.

Harvey Pollack,
107-06 112th Street,
Richmond Hill, N. Y.

(The rule we go by is to publish all letters if there are any features of general interest in them regarding the stories published. Your first and second statements about bending light seem to us not to cover the ground. We would not call reflection bending, and in the first of your suggestions, you state specifically that the light is not bent. Effective gravitation of light is so minute that for the purpose of a story it may generally be left out of consideration. As regards your fourth statement, you show some ingenuity in formulating the theory for a possibility tangible enough for a story. The nearest approach to a real bending of light of any considerable amount is diffraction. Your fifth suggestion might seem to touch upon diffraction, but we believe you are thinking of the penumbra, which is due to the source of light having considerable area. But the central spot is dark.—EDITOR.)

A PLEA FOR REPRINTS, AND SOME BRICKBATS

Editor, AMAZING STORIES:

I have read some of your first issues, and some of the latest. Your first copies were "swell," but your last, to my way of thinking, are terrible. Is the matter with me or with the stories? Now I know a good story when I read it. Either I am losing my taste for Science-fiction or Science-fiction is becoming tasteless, no good.

What is the matter? Your first stories were mostly reprints; your latest are not. One would expect the present magazine to be better; and one would be sadly mistaken. Why? When the first Science-fiction stories were written, the stories would either be rejected or not sent to the publisher at all.

"The readers don't want such trash," the Editors would say.

And when a Science fiction story was published by some daring Editor, it just had to be good.

Nowadays the author labels his story Science-fiction and it probably is published. And all the stories are about crazy scientists and brave heroes.

Astral invaders and brave hero; rocket planes, trips to the planets, and brave hero. Sickenings, isn't it?

What you, Mr. Editor, ought to do is blue pencil every story that comes in and publish reprints. Then the present day authors will get scared and use their brains instead of taking an old story, give it new characters, and bring it out as their own brain-child.

The reprint idea is good. How about some of Merritt's works? "Ship of Ishtar," and "Metal Monster." "The Blind Spot," by Homer Eon Flint and Austin Hall. There are a lot of old stories that you could reprint and I know we'd love them. And those who do not want reprints on the grounds that they like to read new stories or they have read the story before, or that the present day authors will starve, just say that the new stories are the old ones reshaped, and that the present day author deserves to starve. Besides, they are in the minority and 'tis best to please the majority.

I am seeking back numbers of AMAZING STORIES from the first issue to August, 1927. Also the first Annual of AMAZING STORIES. To those who have these magazines, I will trade such stories as "The Snake Mother," by A. Merritt, "Jan of the Jungle," "Prince of Peril," "Maza of the Moon," by O. A. Kline, "Tama of the Light Country," and its sequel "Tama Princess of Mercury," by Ray Cummings, "Radio Menace," "Caves of Ocean" and "Radio Gun Runners," by Ralph Milne Farley. "Tarzan at the Earth's Core," "A Fighting Man of Mars," by Burroughs. Those by Merritt, Burroughs and Kline will cost a bit more. Merritt's "Snake Mother" goes for the first Annual or his story "The Moon Pool." If you wish to buy these stories, O. K. Write for information, enclosing self addressed stamped envelope.

Albert Feder,
5949 Stanton Avenue,
Detroit, Mich.

(It is a good tonic for an editor to receive such letters as yours and although we get comparatively few of them it is a bad thing to depend on constant use of tonics; any physician, we think, will tell you this. It is seldom that we get so strong a plea for reprints but we feel that unquestionably the great majority of our readers like original stories. In the early days of the magazine, before we had what we almost term a staff of authors, many reprints were used and these were in many cases criticized very unfavorably, but your letter, we assure you, will receive full consideration. What you say about the interplanetary stories should be read in the light of the demand for such stories which we have so often received and which induces us to publish them. The back number question may be termed with us an acute one. We are quite unable to supply the demand.—EDITOR.)

If you want a steady Government Position, where strikes, hard times, politics, etc., will not affect you, where you draw twelve months' pay every year, and when you become old retired on a pension the balance of your life, get on Uncle Sam's Payroll. Stop worrying, enjoy life. Pick the position you want, it belongs to you just as much as to anyone else. Why not get it? It is all up to you! The positions described in this announcement are only a few of the many desirable and obtainable. Fill out the coupon below, mail it today and full particulars will be sent immediately.

SPECIAL AGENTS (Investigators) START \$200 MONTH

Government Secret Service Work is one of the most fascinating branches of the Service. These positions are located throughout the country are both traveling and stationary. Salaries up to \$5,000 yearly, and all traveling expenses paid while on the road.

OUTDOOR POSITIONS

Ideal, healthy, fascinating employment, where you can enjoy the forests, plains, and mountain trails, sunshine, and pure air. Duties are patrolling our borders, delivering mail on rural routes, and in cities and towns, etc.

RURAL AND CITY CARRIERS

\$1400 to \$3000 Year

The Rural Mail Carrier has easy, healthy outside work, short hours, with a large part of the day left to do as he pleases. Thousands of city positions for those who prefer inside work, delivering mail in office buildings. These positions open to both country and city people.

MEAT INSPECTORS

\$1500 to \$1880 Year and UP

This is interesting work. Farmers, butchers, or anyone with a knowledge of live stock, food products, meats, etc., are in line for one of these positions. Salaries and promotions splendid. Both men and women are eligible.

RAILWAY MAIL CLERK

\$1850 to \$2700 Year

These positions are both traveling and stationary. When traveling you receive an extra allowance when away from home more than ten hours; and when you grow old you are retired with a comfortable pension for the balance of your life.

CUSTOMS INSPECTORS

\$2100 Year to Start

The duties are to check and inspect goods brought into this country, levy the duties, etc., and see that Customs regulations are not violated. This is very fascinating work with splendid salaries.

MAIL THIS COUPON TODAY

<input type="checkbox"/> Ry. Mail Clerk	<input type="checkbox"/> Steno-Typist
<input type="checkbox"/> P. O. Laborer	<input type="checkbox"/> Immigrant Inspector
<input type="checkbox"/> R. F. D. Carrier	<input type="checkbox"/> Seapstress
<input type="checkbox"/> Special Agent	<input type="checkbox"/> Auditor
<input type="checkbox"/> Customs Inspector	<input type="checkbox"/> Prohibition Agt.
<input type="checkbox"/> City Mail Carrier	<input type="checkbox"/> U. S. Border Patrol
<input type="checkbox"/> Meat Inspector	<input type="checkbox"/> Chauffeur
<input type="checkbox"/> P. O. Clerk	<input type="checkbox"/> Watchman
<input type="checkbox"/> File Clerk	<input type="checkbox"/> Skilled Laborer
<input type="checkbox"/> General Clerk	<input type="checkbox"/> Postmaster
<input type="checkbox"/> Matron	<input type="checkbox"/> Typist

INSTRUCTION BUREAU

Dept. 327, St. Louis, Mo.

Send me, immediately FREE, full particulars about positions marked "X." Also your big list of other positions obtainable, salaries, locations, how to qualify, opportunities, etc.

NAME

ADDRESS

STOMACH TROUBLE

Thousands of sufferers, many cases of years standing, after using the Udga Treatment report amazing recovery. The Udga Treatment is highly recommended for Ulcers, severe chronic Gastritis, Acidosis, Dyspepsia, Indigestion caused by hyperacidity or faulty diet. 30 day trial with DEFINITE GUARANTEE OF SATISFACTION or Money Refunded. WRITE for FREE valuable book on Stomach Sicknesses and letters of praise from former sufferers. Also \$4,000.00 Reward guaranteeing that these testimonials were voluntarily sent in. Write Today! UDGA, INCORPORATED 1200 Dakota Bldg., St. Paul, Minn.

LAW STUDY AT HOME
 Become a lawyer. Legally trained men win high positions and big success in business and public life. Independent. Greater opportunities now than ever before. Big corporations are headed by men with legal training. Law-trained men earn \$5,000 to \$10,000 Annually.
 We guide you step by step. You can train at home during spare time. Degree of LL. B. conferred. Successful graduates in every section of the U. S. We furnish all text material, including fourteen-time Law Library. Low cost easy terms. Get our valuable 64-page "Law Guide" and "Evidence" books FREE. Send for them NOW.
 LaSalle Extension University, Dept. 31464-L, Chicago
 The World's Largest Business Training Institution

EARN MONEY AT HOME
 YOU can make \$15 to \$50 weekly in spare or full time at home coloring photographs. No experience needed. No canvassing. We instruct you by our new simple Photo-Color process and supply you with work. Write for particulars and Free Book to-day.
 The IRVING-VANCE COMPANY Ltd.
 302 Hart Building, Toronto, Can.

DEAFNESS IS MISERY

Many people with defective hearing and Head Noises enjoy conversation, go to Theatre and Church because they use Leonard Invisible Ear Drums which resemble Tiny Megaphones fitting in the Ear entirely out of sight. No wires, batteries or head piece. They are inexpensive. Write for booklet and sworn statement of the inventor who was himself deaf.
 A. O. LEONARD, Inc., Suite 407, 70 5th Ave., New York

Learn Photography at HOME
 Make money taking pictures. Prepare quickly during spare time. Also earn while you learn. No experience necessary. Now easy method. Nothing else like it. Send at once for free book, Opportunities in Modern Photography, and full particulars.
 AMERICAN SCHOOL OF PHOTOGRAPHY
 Dept. 9387 3601 Michigan Ave. Chicago, U. S. A.

Big 3ft. Telescope
 Five Sections. Brass bound. Powerful Lenses. 10-Mile range. Special Eye Piece for looking at the sun. Included FREE. Can be used as a Microscope. Guaranteed. Big value. Postpaid \$1.75. C. O. D. 15c extra.
 BENNER & COMPANY, T-73, TRENTON, N. J.

Sale Only \$5.75
 Double Action Revolver, made from finest materials. Costs \$12.00 elsewhere. All parts drop forged. 22, 32 or 38 cal. Send only \$1 with order. Pay expressman balance on delivery plus express charges. Order today. Wincholt Mail Order, Box 88, Woodbine, Pa.

HOW TO OBTAIN A Better Looking Nose

Improve Your Personal Appearance
 My free book tells you how I guarantee to improve the shape of your nose by remodeling the cartilage and fleshy parts, quickly, safely, and painlessly, or refund your money. The very fine, precise adjustments which only my new patented Model 25 Nose Shaper possesses, make results satisfactory and lasting. Worn night or day. Over 100,000 users. Send for free book to
 M. TRILETTY, Pioneer Nose-shaping Specialist, Dept. 287, Binghamton, N.Y.

SAVE \$1.50
Special Combination Offer
 1 year of Amazing Stories Monthly and 1 year of Amazing Stories Quarterly
 Both at the special price of \$3.50
 Amazing Stories, 350 Hudson St., New York
 Enclosed is my remittance of \$3.50 covering a one-year subscription for both the Monthly and the Quarterly.
 Name.....
 Address.....
 City..... State.....

A BRICKBAT—BUT NOT A SERIOUS ONE

Editor, AMAZING STORIES:

I just finished reading "Awlo of Ulm" in our September issue of A. S. and couldn't resist sending my first comment of your—beg pardon, "our" magazine. How could Morey possibly make the mistake that he did on the cover? According to the story, Kapioma's Ray Suit is supposed to have forty "arms" and Courtney's is supposed to have quite a bunch of arms also. Then why did Morey only give them five extra arms each! After reading our magazine for five years and after praising it for just as long, I couldn't help feeling bad to think that you could overlook such an error.

Let's I appear too antagonistic towards A. S. and Morey, let me say that it is the one and only mag. for yours truly and he is, in my opinion (or is it opinion), as good, if not better, than the best of them.

I enjoy all of your stories and wish you and our mag. a good and prosperous future.

Irving J. Sussman,
 877 Stebbins Avenue,
 New York, N. Y.

(Like many of our correspondents, or rather like a few who throw brickbats at us, you announce yourself a friend. In "Awlo of Ulm" there are described various ray suits—some with few arms, such as are shown in the picture you criticize. Morey painted this cover after studying the story and its possibilities—he feels that he made no mistake. Undoubtedly forty "arms" would have made an impressive picture, but it belonged to another part of the story.—EDITOR.

IF BRICKBATS ARE A TONIC, THIS LETTER OUGHT TO STRENGTHEN US

Editor, AMAZING STORIES:

I have finished the September issue. It wasn't very good. I never did like Capt. Meek and his last two stories were as bad as the Dr. Bird stories. A cat is supposed to have nine lives, but Saranoff has an unlimited number of lives.

"The Steam Shovel" was rotten.

I don't remember how to spell the next story, but while being the best in the issue, it also wasn't very good.

I started "Spacehounds of IPC" and was very disappointed in it.

I think that three of the best stories this year are:

"Skylark Three"—Dr. Smith
 "The Metal Horde"—Campbell
 "Television Hill"—McLoicard

I'm not sure if the "Metal Horde" came out this year.

Your best authors are Campbell, Smith and Hamilton.

I hope that you will never let Schlossel write for any other magazine. He's the best author of any science-fiction magazine and I want him exclusively for AMAZING STORIES Quarterly. When a good writer writes too many stories, most of them are rotten.

I want to ask some questions:

1. If I'm not mistaken, a body of matter traveling at the speed of light (183,000 miles per sec.) becomes "free electrons" or becomes light itself. If that is the case, would it be possible to go as fast or faster than light in a space ship?

2. Is it possible to become invisible? If so, would your body still be material?

3. Could you send messages by radio across the ether—say from the moon?

4. Is the other side of the moon the same as the side that faces the earth?

5. I understand that the moon is supposed to have been thrown off the earth. What part of the earth?

That's all I've got to say except that I like your magazine very much and always look forward to the next issue.

Joseph Edelman,
 60 East 103rd Street,
 New York City, N. Y.

(We publish this letter for two reasons. It is a principle with us to publish letters of unfavorable criticism just as certainly as we do those of commendation. The peculiarity of your criticisms is that you express dislike for what others of our readers like and vice versa. The letter also asks some interesting questions. The "Spacehounds of IPC" has been praised by

many of our readers. Captain Meek has been greatly admired by them. So what can an unfortunate editor do? Of course, we can not carry out your idea of limiting the number of stories an author is to write. In order to get them of high quality, we have to study what comes in.

Now for your questions:

A body traveling at the speed of light would cease to have any dimension in the direction of his motion. Following out the Lorenz contraction theory, it would seem to become an infinitely thin plane, but we had better reconcile ourselves to our authors sending their people about at this impossible speed. It is thus far impossible to become invisible. Messages could undoubtedly be sent by radio through the ether. We do not know what the other side of the moon is like, but there is not the least doubt that it is similar to the side which we see. The moon is supposed to have been torn out of the earth when the latter was still liquid.—EDITOR.)

EXHAUSTED PATIENCE!

Editor, AMAZING STORIES:

My patience is at last exhausted. AMAZING STORIES seems to be on the decline. In the August issue the stories are terrible. "Time Hoaxers," "Submicroscopic" and "The Burning Swamp" were unreadable. "Spacehounds of IPC" is good, but Smith always toys with great distances too much. Why must you have one terrible story in each issue? "Cleon of Yzdril" in the July and "Time Hoaxers" in August were both classed by me as unreadable. I never finished "Cleon." Smith, Hamilton, S. P. Meek and Dr. Keller are your best writers; don't lose them.

I would like to point out a mistake which I think I have found in S. P. Meek's "Submicroscopic." Courtney, when he increased his size, found that he weighed 1200 pounds. There is some error, somewhere, because was he not still made up of the same material? He had neither gained nor lost atoms, but merely condensed them or expanded them or changed their period of vibration. Matter being neither lost nor gained, his weight would stay the same, the atoms of his structure being further apart or nearer together.

I don't see why readers are always kicking about the acceleration being so great that we could never reach the nearest stars. A ship could be built that could stand almost any acceleration, and if some future science brings about anti-gravity pads, these could be placed in the front of the ship to counteract the influence of acceleration and any speed, even the speed of light, could be achieved.

Why did William Koben also claim that all the atmosphere on the moon is such that it would rush to the cold side and freeze?

If A. Cook's observation that the stars we see might be our own sun light years ago, he must also claim that we on the solar system have traveled faster than light at some time so that the light of the sun is just catching up with us.

Are all your stories written by a staff or do you publish stories written by others? How are chances of "breaking in"? I have a story nearly finished which I am going to submit if there is any chance.

William N. Dorn,
 Jacksonville, Ore.

(If the writer of this letter will run through the Discussions columns, he will find that there are very few of those who write to us expressing such ideas as his. The stories you object to have been greatly admired, so what can we do? We cannot please everybody. The stories you consider unreasonable are read by thousands. In Captain Meek's story, we do not recollect that he says that the atoms in the hero's body were always the same in number. Why may we not assume that they varied? You cannot expand or condense an atom. The trouble about high acceleration is not its effect on the space ship, but on the people who are in it. High acceleration would be terribly exhausting and trying. It would be like subjecting the body to a crushing weight of perhaps several tons. We are always glad to get stories by new authors. There is every chance of new authors "breaking in," except for the fact that we have a great many stories on hand. Every story (though you may not believe it) goes on its merit, not on its author's name. We have no staff of authors—new ones are constantly contributing to our columns, as you can see by the names.—EDITOR.)

A COMPLIMENTARY LETTER ABOUT DR. SMITH, ABOUT REPRINTS

Editor, AMAZING STORIES:

I have just received the September issue of "our Mag" and after reading the "Discussions" column, and part three of "Spacehounds," I couldn't read any further until I sat down and wrote you a letter of congratulation.

E. E. Smith is a master of science fiction and his stories are marvelous. That wedding scene was too breathless, with the constant expectation of the breaking down of the tubes. If I read it over again, I'll have to wear a space-suit to furnish oxygen. And maybe A. Merritt thought that that paragraph in "Moon Pool," describing the "Fata Morgana of Plantdom," was the berries, but let him read the section in "Spacehounds" describing the Vorkul-Hexan war if he wants description plus action. It was highly amusing to read of the Vorkul holding a book "negligently" in four or five hands, reading it with one eye while the other eye watched a television screen. They must either have two brains or else they have one highly trained brain. I don't believe any human could do it even if his eyes could turn different directions—but, of course, the Vorkuls are far from human. Of course, it is unnecessary to say that we want, not one, but five or six sequels to "Spacehounds," creating a series similar to the Arcot, Morey series by John Campbell. Here's hoping the doctor spent his entire summer vacation (if any) in writing the aforementioned sequels. Let's have them no farther than three months apart, if possible.

Now a few lines telling the editor how to improve (or completely ruin) our mag. First, the old question of cover, artists, paper, size, etc. The cover is all right as it is, but couldn't you give us a cover by Wessop once in a while, and if you can find a scene calling for machinery, let Paul do a cover. Also try Müller on one cover, as I am curious as to what the result would be. Next the size: Don't change it! A smaller mag. requires the use of both hands and a cabinetmaker's clamp to hold it open. The paper is O.K., but I almost forgot another point, namely, reprints. I believe the suggestion by P. Schuyler Miller in the August issue was the most sensible that I've heard yet. Put out either a reprint annual (the first annual was mostly reprint, you know), or a set of classics, as he suggests, but don't pass up the new authors to put reprints in the Monthly or Quarterly. A few reprints I would especially like are "Moon Pool," "The Blind Spot" (from the early *Argosy*), "Skylark of Space," "Station X" and "Tarrano the Conqueror." I would also like to see the "Second Deluge," "Moon Metal" and—oh, why go on? Practically sixty per cent. of the serials and long stories and thirty or forty per cent. of the short stories in A. S. will be eligible as reprint classics in five more years.

I have noticed in the last two issues that the page opposite the editorial (which is always interesting) has been left open for special announcements. Why not keep that page open especially for that purpose in every issue? You could announce Quarterlies, the coming of special stories, such as "Spacehounds," and you might even publish the picture of and a few lines about your more prominent authors, beginning, of course, with Dr. Smith.

Several requests have come to change the name to "Scientifiction." Don't do it. The magazine right now is five per cent. better than perfect and constantly improving. If this sounds impossible, read another amazing story. There are plenty of imaginative fiction magazines, but only one science-fiction mag.

When I began this letter I did not intend that it should be so long, but I had to express my views.

Here's hoping for the day when A. S. is a daily a foot thick, printed in small type on Bible paper with a story by E. E. Smith, John Campbell, and the rest of your master authors in each issue.

Lamont Jensen,
c/o Johnson Hotel,
Lovell, Wyoming.

(We are very sure that Dr. Smith will enjoy your comments on his work and we are proud to feel that we discovered him and that he has made himself a personal friend of the staff of this magazine. We have to agree with our reader's opinion, but unfortunately, Müller's striking new art style was disliked by many. We feel that we are getting such good art work as it is now, and the system is so complete, that we hate to disturb it. We are very glad that you approve of our use of new stories in the

Monthly and Quarterly. If we ever do publish the portraits of our authors, we will certainly try our best to do them justice. The poor quality of portraits, so often given in magazines, makes us instinctively dislike them. We do not want to change the name of our magazine. It has won a very high standing for itself under the present title, which certainly justifies the retention thereof. —EDITOR.)

AN APPRECIATION FROM AN ENGLISH READER

Editor, AMAZING STORIES:

You perceive in me another example of a constant reader due to the garishness of your cover, at which, incidentally, so many of your readers are so intent on directing brickbats. There is, however, plenty of room for improvement in this direction. A person seen reading a magazine with such a cover is generally regarded by the ignorant public as being *non compos mentis*. However, the mind-stimulating material found within the portals of A. S. admirably repays for all the amateurish efforts of the reader in becoming a martyr to science.

No doubt the avid interest portrayed on the countenances of your customers gives these people considerable justification for pronouncing the readers as being not of sound mind. For this I have only Mr. David H. Keller, M.D., Mr. Miles J. Brewer, M.D., Woods Peters and Patrick Dutton, not to mention a few more, to blame.

Please, Mr. Editor, give us more of Stephen G. Hale. I have just read the April number and "The Laughing Death" I consider the best story in it: I simply could not put it down till it was finished. It speaks for the masterly authorship of Mr. Hale that throughout the story I could not but compare it with "Deluge," by Fowler Wright, which is incidentally a best seller over here, and which I heartily recommend to your readers.

To those unhuman individuals who are always earnestly entreating you to cut out the love interest in your stories, I would answer that they evidently do not realize that love is one of the greatest scientific mysteries of all time, and that scientists are even now endeavoring to compare love with some as yet undiscovered form of emanating wave which is found to be in unison with the perfect lovers.

This is as it may be, but I can only refer them back and ask them to digest very thoroughly once again that splendid story, "The 20th Century Homunculus," a masterpiece in itself, which forms the basis of my reply to them.

Whilst I am all for praising your magazine, Mr. Editor, I must admit that some of your stories are not only fantastically improbable but ludicrously impossible. Take for example, "Beings of the Boundless Blue." It is a mystery to me how Mr. Kingston could have his clothes burst off him and yet survive the intense cold of the higher altitudes; due to his immense proportions; no doubt, he can survive what to Professor Picard was his greatest danger, intense cold and lack of air. Step down, sir! I can't believe that.

Perhaps some of your U.S. A. readers (or others) could favor me by lending me his copy of "The Moon Pool" about which I have heard so much, for which I should be pleased to forward him anything he might require.

I must conclude by saying continue the good work, we have nothing like the A. S. over here. It is one of the best magazines; Not the best magazine I have read for many years.

Fred A. J. Revell,
94 White Post Lane,
Victoria Park, London, E. 9.

(A very gratifying feature of letters from our English and other foreign readers is that they seem to like our work and we certainly can assure our correspondents that a great amount of thought and effort is put into every one of our issues. A letter like the above, coming across the water from an English friend, is highly appreciated by us. We feel that we need not dread receiving unfavorable criticism from our English readers. As regards the effects of the cold of inter-space, we must remember that it would be due to radiation from the body and would be relatively less intense than if there were air there to carry off the heat by convection and conduction. On a cold day on the surface of the earth the body loses heat because of the cold air it comes in contact with, but in space there would be no such action. We really feel that it is a triumph to win commendation from our distant readers and we shall hope for more letters from you. —EDITOR.)



GET THE STRENGTH OF AN OARSMAN

A Gym at Home to Make You Strong

Be Strong! Enjoy the thrill giant strength gives to the varsity oarsman. He must be "there" to stand the strain and endure the greatest and most terrific strength test put to any athlete. If you want massive shoulders—a mighty chest—arms like iron—a powerful back—legs like pillars of steel, and an all around perfect athlete's body—stop dreaming—wake up! The invention of the VIG-ROW is the answer to your dream. The VIG-ROW was created and built by a man who built his own body from a weakling to that of a champion. The VIG-ROW offers body-building principles never revealed to the public before—the perfect device for keeping fit and getting strong. Be sure to investigate the VIG-ROW. You will agree that it is the greatest and most perfect rowing machine ever marketed, regardless of price. Its many features and beauty will amaze you. Send no money—write now for additional free information.

Examine the VIG-ROW First

Space doesn't permit the entire story about the VIG-ROW. There are too many reasons why you should select the VIG-ROW. We don't ask you to purchase from this advertisement—we do ask that you write for our large photographic circular and realize the difference yourself. Write for free facts now. Don't buy now from us or anyone else—compare—examine—test—don't buy a cat in the bag—write us now and get the wonderful complete VIG-ROW story.

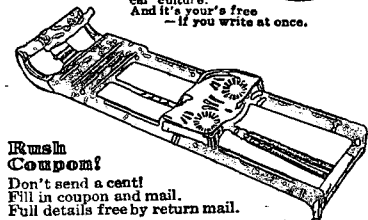
EXCLUSIVE VIG-ROW FEATURES

Inclined Frame
Sliding,
Form-Fitting
Aluminum Seat
Progressive
Exercise Springs
—Instantly
Adjustable
Arch-Supporting
Foot-Rest
—Aluminum
Front
Noiseless
Rubber Wheels
—Oilless
Bearings

Free Instructions

We don't think it enough fast to tell you the finest rowing machine in the world and trust to luck that you will use it and get strong. We furnish a course of instruction, without extra cost, that is complete in every detail, showing how to develop every part of the body with the VIG-ROW—prepared and written by a master of physical culture. And it's your's free —if you write at once.

\$11.85



Rush Coupon!

Don't send a cent!
Fill in coupon and mail.
Full details free by return mail.

AMERICAN ATHLETIC APPLIANCE COMPANY
239 Broadway, Dept. 1511, New York City
Please send absolutely free and without obligation, full details about your wonderful VIG-ROW rowing machine. Also reserve one of those free instruction courses. I have checked plan of purchase that interests me, if I decide to purchase a VIG-ROW.
☐ Cash Price ☐ Installment Plan
Name Age
Street
City State
Please print or write plainly



AN EASY WAY TO SHAPE your NOSE

Anita Nose Adjuster shapes flesh and cartilage—quickly, safely, painlessly, while you sleep or work. Lasting results. Gold Medal Winner. 87,000 users. Doctors praise it. Write for Free Booklet.

ANITA INSTITUTE

W-51 Anita Bldg. Newark, N. J.

Outdoor Jobs

Wanted—Names of men desiring steady outdoor government jobs; \$1,700-\$2,400 year; vacation. Patrol parks; protect game. Write immediately.

DELMAR INSTITUTE

Dept. A-38

Denver, Colorado



\$5,000 WILL BE PAID TO ANYONE WHO PROVES THAT THIS

is not the actual photo of myself showing my superb physique and how the Ross system has increased my own height to 6 ft. 3.34 inches

Hundreds of Testimonials. Clients up to 45 years old gain from 1 to 6 inches in a few weeks!

No Appliances—No Drugs—No Dieting
ROSS SYSTEM NEVER FAILS. Fee Ten Dollars Complete
Convincing Testimony and Particulars 6 cents stamp.
Allow time for return mails across the Atlantic.
G. M. COLMAN, 2085, Height Specialist
Scarborough, England, (P. O. Box 15)



First in 1907
FIRST TO-DAY

\$\$ SONG WRITING \$\$

Big Royalties

paid by Music Publishers and Talking Picture Producers. Free booklet describes most complete song service ever offered. Hit writers will revise, arrange, compose music to your lyrics or lyrics to your music, secure U. S. Copyright, broadcast your song over the radio. Our Sales Department submits to Music Publishers and Hollywood Picture Studios. **WRITE TODAY** for full information.
UNIVERSAL SONG SERVICE
652 Meyer Bldg., Western Ave. and Sierra Vista, Hollywood, Calif.

Getting Up

Nights Lowers Vitality

If you feel old and run-down from Getting Up Nights, Backache, Leg Pains, Nervousness, Stiffness, or Burning, caused by Kidney Acidity, use quick-acting Cystex (Sis-tex). Often shows big improvement in 24 hours. Guaranteed to satisfy completely or return empty box and get money back. Only 75c at drugists.

Be A Detective

Make Secret Investigations

Earn Big Money. Work home or travel. Fascinating work. Experience unnecessary. **DETECTIVE Particulars FREE. Write NOW to GEO. C. N. WAGNER, 2190 Broadway, N. Y.**

\$---ALWAYS HAVE LUCK---



Unlucky in Money, Games, Love or Business? You should carry a pair of genuine MYSTIC BRAHMA RED LIVE HIGHLY MAGNETIC LODESTONES. Rare, Amazing, Compelling. Attractive, these LIVE LODESTONES are carried by Occult, Oriental people as a POWERFUL LUCKY CHARM, one to prevent Bad Luck, Evil and Misfortune, and the other to attract much Good Luck, Love, Happiness and Prosperity. Special only \$1.97 for the two. With free full instructions. Pay postman \$1.97 and 15c postage on delivery. Satisfaction or money refunded. You can be LUCKY! Order yours TODAY!

Dept. 93 P. S. BUREAU, General P. O. Box 72, Brooklyn, N. Y.
NOTICE! We absolutely GUARANTEE these genuine Mystic Brahma Lode-stones are ALIVE! Just what you want, for they are the Real Thing—POWERFUL, HIGHLY MAGNETIC!

AN INTERESTING LETTER ABOUT TIME AND VELOCITY RELATION, THE FOURTH DIMENSION AND TIME TRAVEL

Editor, AMAZING STORIES:

In several issues of AMAZING STORIES I read with considerable interest a number of letters from readers of the magazine which appear to suggest that my story, "Via the Time Accelerator," published in the January number, was not as easily understood as I thought it would be when I submitted it to you. I refer particularly to the letters of Mr. I. L. Ingraham and Mr. Vincent De Nardo. I would deeply appreciate your kindness if you permitted me some space in your columns so that I may endeavor to clear up the vague points concerning my story.

Firstly, I am sorry to see that Mr. Ingraham finds the equations at the beginning of my story unconvincing; especially when I put them there with the view of thus proving to the reader that the entire theory of time-travel was not as unfeasible as "common sense" leads us to believe. Also, they furnished the only reasonable way I could find to present the basic ideas of my story in intelligible form to the reader. To the technically-minded reader (as I judge Mr. Ingraham to be), it appears to me that the average time-travel story must prove somewhat unsatisfactory, for as a rule they offer few, if any, hints as to the possible mechanical functions of a time-machine, and sometimes contain at best some perfunctory reference to a "fourth dimension" as being at the bottom of it all. Therefore, I tried, in "Via the Time Accelerator," to show that "time" (i. e. our measurements of time, which fundamentally compose our entire conception of time) is something relative, that it does not pass at identical rates for co-ordinate systems in different states of motion, and that therefore it should be possible to accelerate or retard the passage of time by altering our velocities with reference to our original co-ordinate system (i. e. the earth).

Having reached this critical point, however, I must confess that I fell into an error I make quite often despite my best intentions to avoid it—namely, I assumed that the rest of the argument was obvious to the reader without further discussion.

My reference to vibrating particles was made on the assumption that it was clear to my reader that such particles constituted natural clocks; that their rates of vibration were measures of time-passage; and that, consequently, a particle moving through space at a high velocity would vibrate more slowly than a "stationary" one. Therefore, the time-values measured by that particle would be different from those measured by the "stationary" particle.

This brings us then to the mechanical operation of Brockhurst's Time Machine. Since it

was obviously impractical to shoot my character away from the earth at a tremendous velocity—approaching that of light—in order to make his constituent atoms vibrate slower with respect to the earth, the best thing to do was to invent a machine which would remain on the planet, but just the same, force Brockhurst's atoms to vibrate slower and thus create time-values longer than those of the world at large. The reason for having his atoms vibrate slower, of course, is that in this manner physical processes outside the influence of the machine would appear to be speeded up to an observer within that field of influence, so that while but a few hours may pass by his own watch, many years may pass by outside.

That such a machine is theoretically possible I haven't the slightest doubt. Astronomers have discovered that, in full accordance with the Einstein theory, atomic vibration is appreciably slower in the intense, natural gravitational fields of very massive stars than it is on earth. "Time" passes more slowly on those stars. (Remember L. Taylor Hansen's "The Prince of Liars"?) Now, if we could build a machine which generates an artificial gravitational field (such as, for example, an intense electro-magnetic field), all atoms within that field would also vibrate slower than in "free space"; consequently time-values would be "warped" within that field and we would have a true Time Machine. Why shouldn't it be possible for a good electrical engineer, within the next few centuries, to construct such a machine?

However, I will admit one thing. Such a machine could not travel into its own Past, for a moment's mathematical investigation shows that this procedure involves velocities exceeding that of light, sums greater than infinity, and absolute frequencies of vibration less than zero. However, for the sake of the plot in my story I was forced to disregard this impossibility (?), permitting my character to move both forward and backward through time. Yet, even now I have an idea milling around in my loft, which hints strongly that the "impossibility" I have just mentioned may be subject to modification. At any rate, time-traveling (into the future) does not strike me as a sheer impossibility.

I trust this allays Mr. Ingraham's doubts about my story. Now to clear up Mr. De Nardo's questions.

Mr. De Nardo wishes to know how the same machine could be in two places at the same time, how Brockhurst was able to see himself return from his time-journey as he was just beginning it, and how he could see himself start out as he was returning. To understand these paradoxes, Mr. De Nardo must conceive of the plane as a four-dimensional body, of which under normal conditions we see but a single three-dimensional cross-section at any particular instant. If, however, that four-dimensional body is curved back upon itself so that two sections (at different points in space) intersect the same instant of time, then the apparent impossibility of seeing the same thing in two places at once disappears.

As for Brockhurst seeing himself return from the future before he started, and then again seeing himself leave after he had returned, that is very simply explained. On his return from J, 001, 930 A. D., the time-traveler simply overshoot his mark by a few minutes, so that he went a tiny bit farther into the past than the moment when he began his trip. Of course, as soon as he stopped moving backward in time he began moving forward in it again, so he again reached the instant of his departure and was able to witness his time machine vanish into the future. It is simply again the case of two three-dimensional cross-sections of a single four-dimensional body intersecting the same moment of time. All clear?

Really, I can see no great impossibility in the theory of time-travel, and all our present-day logic may in the light of future accomplishment appear highly illogical. If we accept the idea of four-dimensional space-time, in which the future and the past are co-existent with the present, we must rather expect some violation of our "common sense."

I must yield a point to Mr. Ingraham, however, when he describes the equations in "Via the Time Accelerator" as being "cockeyed." They are. The reason is that when I wrote the story, I had not developed the underlying equations in a logical manner from a simple mathematical base (as, shame be on me to admit it, I should have done), so although their

SECRETPOWER



FREE TELEPATHY, THE ART OF BROADCASTING THOUGHTS TO OTHERS

The following are a few testimonial letters:
"The man of whom we bought home changed his mind about forecasting. He hardly knows why, but we do."—New Baltimore, Mich.
"Collected debt owed me two years."—Portage, Pa.
"Studied Psychology 30 years. You've taught me things I've sought for 25 years."—Philadelphia, Pa.
"Telepathy is quickest way to do things."—Dawson, N. M.

If you want to know more about TELEPATHY, THE ART OF BROADCASTING THOUGHTS, then send for our free booklet that is causing a sensation among men and women. This booklet also contains information on Astrology, Health, Self Betterment, and the discovery of a Mighty Law, the enormous powers of which will amaze you. This booklet will be sent to you FREE of charge or obligation.

PATY CO., 618 SOUTH WESTERN AVE., DEPT. A-3 LOS ANGELES, CALIFORNIA

TO OTHERS
FAR OR NEAR

FREE TELEPATHY, THE ART OF BROADCASTING THOUGHTS TO OTHERS

"My son was in bad company. When I broadcasted my thoughts to him he told me he had no pleasure away from home. He felt I was thinking of him and that it was like electric currents striking him."—New Orleans, La.
"Your instructions were the first practical ones. Getting results in business. Business dull with everyone. With me it's different, thanks to Telepathy."—New Baltimore, Mich.

If you want to know more about TELEPATHY, THE ART OF BROADCASTING THOUGHTS, then send for our free booklet that is causing a sensation among men and women. This booklet also contains information on Astrology, Health, Self Betterment, and the discovery of a Mighty Law, the enormous powers of which will amaze you. This booklet will be sent to you FREE of charge or obligation.

PATY CO., 618 SOUTH WESTERN AVE., DEPT. A-3 LOS ANGELES, CALIFORNIA

FREE Book on Telepathy, Astrology, Health and Self Betterment

OPPORTUNITY AD-LETS

These columns will appear monthly in AMAZING STORIES

Rate—Eight cents a word. Cash should accompany all advertisements unless placed by an accredited advertising agency. Advertisements for less than 10 words not accepted. Teak Publishing Corporation, 350 Hudson St., New York, N. Y.

AGENTS WANTED

CALIFORNIA Perfumed Beads, selling like hot cakes. Agents coining money. Catalogue free. Mission Factory, A-2, 2328W Pico, Los Angeles, Calif.

CORRESPONDENCE COURSES

Used Correspondence School courses sold on repurchase basis. Also rented and exchanged. Money back guarantee. Catalogue free. (Courses bought.) Lee Mountain, Pisgah, Alabama.

DETECTIVES

DETECTIVES. Work home or travel. Experience unnecessary. Particulars free. Write George Wagoner, 2190-A, Broadway, N. Y.

OLD COINS WANTED

OLD MONEY WANTED. Will pay Fifty Dollars for nickel of 1913 with Liberty head (no Buffalo). We pay cash premiums for all rare coins. Send 4c for Large Coin Folder. May mean much profit to you. Numismatic Co., Dept. 151, Ft. Worth, Texas.

PRINTING OUTFITS AND SUPPLIES

COMPLETE PRINTING OUTFITS, presses, type, ink, paper supplies. Write for catalogue, Kelsey Co., G-67, Meriden, Conn.

SONGWRITERS

SONGWRITERS: Read "Song Requirements of Talking Pictures, Radio and Records", an explanatory, instructive book SENT FREE to aspiring writers of words for songs. We compose, arrange music and secure copyrights. Write today, A. S. Newcomer Associates, 1674 Broadway, N. Y.

PUBLISH THAT SONG. Write Tate-International, Memphis, Tenn., for complete details.

STAMPS

STAMP COLLECTORS 300 different and list 20c. Orren Krause, Harbor Beach, Mich.

final result is correct, the equations themselves are not exact.

Frank J. Bridge,
Milwaukee, Wisc.

(This letter is so long and so well put that it requires no comments from us, it tells its own story. We absolutely enjoyed the concluding paragraph of this letter, which in its entirety is a communication of real merit and which makes excellent reading.—EDITOR.)

STREAMLINING FOR SPACE SHIPS— THE MOTIF OF LOVE IN STORIES

Editor, AMAZING STORIES:

I have just received my September issue of A. S. In the illustration of "Spacehounds of IPC" it shows the flying fortress of the Vorkulians as seven pointed stars. Why couldn't the vessels be streamlined like the other ships in the picture? The Vorkulians didn't travel much in space and streamlining would save a great deal of power.

"Spacehounds" was a good story, but I do not think it or any other story published in A. S. comes up to "Skylark Three."

The illustration for "The Prince of Space" shows his ship coming into the cylinder from space without going into an airlock. At least you can see outer space through the door of the cylinder. That would let all the air out of the cylinder, wouldn't it?

Some of the readers object to "mush" in the stories. I think a love element does not constitute "mush."

When are we going to have another "Skylark" story?

I do not criticize your authors too much because their stories are nearly always good. They may write a poor one, but their next one makes up for it.

Please do not reduce the size of your magazine, as that would ruin it.

Harry F. Muntis, Jr.,
Harrod, Ohio.

(The space ship moving in the vacuum of space would move just as well when not streamlined, as if it were given the most careful contour, because there is nothing to be pushed aside or to be gone through. It is only in air or some other gas that streamlining would have a good effect. Of course, the Vorkulians might have made their ship "amphibious" and streamlined it. We cannot promise particular stories in the future, but we shall hope, of course, to get another "Skylark" or its equivalent. Dr. Smith gives great care and thought to his work and has a definite propensity to limit his output. This is one of the reasons why his work is so high a standard, outside of the fact that he is a very distinguished scientist. We agree with you about the size of our magazine. We certainly feel that it makes it more presentable where the love motif appears in our stories. We fail to see that this is "mush." This topic, which plays so great a part in the lives of humanity, we try to have treated in a thoroughly dignified manner, and this, we believe, our authors do.—EDITOR.)

ANENT THE AUGUST ISSUE

Editor, AMAZING STORIES:

I am writing this, my first letter to "Discussions" as an "old timer" as readers come, having read A. S. since its first year.

Your magazine is, in my opinion, the best in its class, but there is still room for improvement. The cover illustrations are not of the highest class because you still insist upon letting Wesso or Morey do the work in their own blundering style instead of engaging the famous Paul, the dean of all science artists. Aside from this, everything is O.K. Keep the Editorial and "Discussions" (yes, I read them first) columns, for without them the magazine would degenerate to the low level of its rivals.

So much for the magazine itself.

I do not agree with A. Cook's theory in which he stated in the August issue that the universe is sparsely studded with stars and suns because, in his support of the theory he suggested that the light that we recognize as coming from a distant star might be that of our own sun and that we are meeting it again after countless ages have passed. This doesn't seem to me to be logical, as the light from the sun would either have to take a round-about way to be only arriving now or the sun would have to be traveling at a speed greater than light in order to arrive before its own light. Both of which possibilities are impossible in the light of present

day knowledge. But Mr. Cook's theory shows a good deal of thought.

The Campbell vs. Smith fracas is very interesting. Personally I'm for Smith, but not knowing a great deal of science, I'll keep out of it.

Also in the August issue, P. Schuyler Miller expresses a desire for reprints of the old classics to which I add my plea. When you do reprint them, don't forget Merritt and "The Moon Pool," illustrated by Paul.

M. J. Fischer,
22 Orange Rd.,
Montclair, N. J.

(We realize thoroughly that there is room for improvement in AMAZING STORIES, but cannot the same be said of any literary work? The first line of "Paradise Lost" is open to criticism for defective prosody. Nothing can be expected to be perfect in literature. We are vain enough to think that our magazine is very good. We are supported in that viewpoint by just such correspondents as yourself and we can assure you that such letters as yours are a great comfort to our editors. But you fail to do justice to our artists. Wesso and Morey are excellent illustrators in all respects.—EDITOR.)

A CRITICISM AND APPRECIATION OF AMAZING STORIES

Editor, AMAZING STORIES:

Now that six years and a half have passed since I bought my first copy of AMAZING STORIES, I believe that it is about time to make a comment.

As I hold before me Vol. 1, No. 1, and Vol. 6, No. 5, I deem it a pleasure to be able to congratulate you on your wonderful improvement over the first issue that reached the newsstands in April, 1926.

Although the entire outer appearance has changed 100 per cent. for the better, there is still that old spirit existing that caused AMAZING STORIES to win such a high standard in the literary field. The spirit of having stories by men who rank high in educational and professional fields has been present, ever since the first sheet went to press, and it was shown by the words on the first cover. "Stories by H. G. Wells, George Allen England, Jules Verne and Edgar Allan Poe." Today we still find that the authors are of this same high standard when we see on the cover, "Stories by Edward E. Smith, Ph. D., Captain S. P. Meek, U. S. A., David H. Keller, M. D., and others who have either earned a Ph. D. or an M. D. after their name.

What has become of Clement Fezandjé, who wrote "Doctor Hackenshaw's Secrets"? Is he dead? I would surely enjoy some more of his interesting short stories.

I would also like to know what has become of Garrett P. Serviss and McLeod Winsor, as I enjoyed their stories very much.

Will we ever get a sequel to E. Hamilton's story, "The Universe Wreckers," and Capt. S. P. Meek's story, "The Drums of Tapajos"?

I myself would not care to see reprints in the monthly magazine, but I do believe that there should be some way arranged so that the new readers could read those wonderful stories of the past such as "The Second Deluge" and "Station X."

Could you answer this question for me? Why is it not possible, when passing the asteroids in a space ship, to fly over them or to go under them instead of through them, as so many authors make their ships do?

I hope that the next six and a half years will show as much continual improvement in our magazine as the last six years have.

Alvin Fickewirth,
6400 Holmes Avenue,
Los Angeles, Calif.

(We cannot tell you how great a comfort it is to be assured that our magazine has improved. It is really a labor of love with us and we want to make it better and better, but we have to depend upon our authors, they are the ones to improve it, and upon our readers, who keep us to the straight and narrow path. We do not know what has become of Clement Fezandjé; we doubt if he is doing any writing now. Mr. Serviss died many months ago. We do not know what has become of the other author you ask about. We shall probably be hearing from Captain Meek soon about a sequel to his story, for which there has been an insistent demand. We think that when you go up in a space ship, you will find your system of avoiding asteroids an excellent one, provided they are all confined in their motions to the orbital planes of the planets.—EDITOR.)

FREE 6 FAMOUS SPARK PLUGS
worth \$4.50
To customers for GOOD YEAR
Goodrich Firestone and other tires

Lowest Prices in History - 75% Saving

Midland's Immense Buying Power Makes This Possible
Thousands of motorists all over U. S. A. use and boost our Standard and Brand reconstructed Tires. Hard service on roughest roads guaranteed. Our nation-wide success and reputation speaks for itself. FREE for limited time one 75c best quality spark plug with every tire shipped. Order 4 tires—get full set 6 spark plugs free. New pay for your car—no extra cost. Be sure to mention make of car, model, year built. ORDER TODAY at these Rock Bottom Prices. Satisfaction Guaranteed.

Size	Run Tires	Reg. Price	Our Price
28x4.40-21	\$2.30	\$1.10	\$1.40
28x4.50-21	2.40	1.15	1.45
28x4.60-21	2.40	1.20	1.50
28x4.75-19	2.45	1.20	1.50
28x4.85-21	2.50	1.25	1.55
28x5.00-21	2.55	1.30	1.60
28x5.15-19	2.60	1.35	1.65
28x5.25-21	2.65	1.40	1.70
28x5.35-21	2.70	1.45	1.75
28x5.45-21	2.75	1.50	1.80
28x5.55-21	2.80	1.55	1.85
28x5.65-21	2.85	1.60	1.90
28x5.75-21	2.90	1.65	1.95
28x5.85-21	2.95	1.70	2.00
28x5.95-21	3.00	1.75	2.05
28x6.00-21	3.05	1.80	2.10
28x6.10-21	3.10	1.85	2.15
28x6.20-21	3.15	1.90	2.20
28x6.30-21	3.20	1.95	2.25
28x6.40-21	3.25	2.00	2.30
28x6.50-21	3.30	2.05	2.35
28x6.60-21	3.35	2.10	2.40
28x6.70-21	3.40	2.15	2.45
28x6.80-21	3.45	2.20	2.50
28x6.90-21	3.50	2.25	2.55
28x7.00-21	3.55	2.30	2.60

Send \$1.00 deposit with each tire ordered.
Balance C.O.D. If you send cash in full deduct 8 per cent. You are guaranteed a year's service or replacement at half price. Order Today—Save Money.
MIDLAND TIRE AND RUBBER COMPANY
Dept. 371 1000-10 W. Sixty-Third Street Chicago

Learn Advertising at Home

Make money in advertising. Prepare quickly during spare time. Also earn while you learn. No experience necessary. New easy method. Nothing else like it. Send at once for free booklet—"Win Success in Advertising", and full particulars. No obligation.

Page-Davis School of Advertising
3601 Michigan Ave., Dept. 93881, Chicago, U. S. A.

REMOVE FAT This Sure Way

From Any Part You Wish Reduced. A New and Safe Way. No Exercises, Baths, Diets, Medicines or Special Equipment Necessary.

THIN-O-CREME
a secret product rigidly tested and has been tried thousands of over-stout people who failed through other means. THIN-O-CREME has proven to quickly remove excess fat from double chin, arms, abdomen, bust, hips, legs or any part of the body. THIN-O-CREME, a product of modern science, a creme-like white preparation that is simply rubbed into any fat part you wish reduced. Soon as applied its magic-like reducing action begins and excess fat gradually disappears. THIN-O-CREME sinks deep into the skin and acts as an agent in the removal of fatty matter without any inconvenience.

Limited Special Offer! A large jar of THIN-O-CREME at specially reduced price of only \$1.95. Send no money unless you wish.
CLIP AND MAIL COUPON TODAY
Thin-O-Creme Co., Dept. RA-355 Broadway, New York, N.Y.
Please send postpaid in plain wrapper, large jar of THIN-O-CREME with directions. I agree to pay postman \$1.95 plus a few cents postage. My money to be refunded if I am not pleased.

Name.....
Address.....

EXTRA STRONG IMPROVED MODEL COPPER BOILER

SAVE 20% NOW!
Most Practical Boiler & Cooker

Made with large 6-inch Improved Cap and built of safe practical and simple. Nothing to get out of order, most substantial and durable on the market. Will last a lifetime, gives real service and satisfaction.

Easily Cleaned
Cap removed in seconds; no burning of hands. An ideal low pressure boiler and pressure cooker for home and farm.

Save 20% by ordering direct from factory. No article such high quality and utility ever sold at such amazingly low prices. Prices quoted are cash with order or one-fourth cash, balance C. O. D. Send check or money order. Prompt shipment made in plain strong box. The only boiler worth having. Large Catalog Free.

HOME MANUFACTURING CO.
Dept. 7910
18 E. Kinzie St., Chicago, Illinois

SOLID CAST NO SCREW TOP HEAVY COPPER

5 Gallon	\$6.50
7	8.85
10	11.90
15	14.20
20	18.50
25	22.50
30	27.50

The Greatest Sin



Must every woman pay the price of a moment's happiness in bitter tears and years of regret? Must millions of homes be ruined—lovers and sweethearts driven apart—marriages totter to the brink of divorce—the sacred joys of sex relations be denied? YES—Just as long as men and women remain ignorant of the simple facts of life.

The Greatest Sin of all is total IGNORANCE of the most important subject in the life of every man and woman—SEX.

AWAY WITH FALSE MODESTY!

Let us face the facts of sex fearlessly and frankly, sincerely and scientifically. Let us tear the veil of shame and mystery from sex and build the future of the race on a new knowledge of all the facts of sex as they are laid bare in plain, daring but wholesome words, and frank pictures in the huge new library of Sex Knowledge.

"MODERN EUGENICS"

89 Chapters—Startling Illustrations.

This volume abounds in truthful illustrations and pictures of scientific interest that one seldom, if ever, finds outside of the highly technical medical books which laymen fail to understand. Every picture is true to life.

544 Pages of SECRETS

Everything a Married Woman Should Know—

How to hold a husband
How to have perfect children
How to preserve youth
Warding off other women
Keeping yourself attractive
Why husbands tire of wives
Dreadful diseases due to ignorance
Diseases of women
Babies and birth control
Twilight sleep—easy childbirth
How babies are conceived
Diseases of children
Family health guide
Change of life—hygiene
Why children die young
Inherited traits and diseases
What will you tell your growing girl?
The mystery of twins
Hundreds of valuable remedies
Nursing and weaning
How to care for invalids

What Will You Tell Your Growing Child?

Will you let your children grow up in the same dangerous ignorance in which you yourself perhaps were reared—or will you guide them safely through puberty by the aid of this truly helpful book?

Girls—Don't Marry before you know all this—

The dangers of petting
How to be a vamp
How to manage the honeymoon
What liberties to allow a lover
Secrets of the wedding nights
Beauty diets and baths
Do you know—
How to attract desirable men
How to manage men
How to know if he loves you
How to acquire bodily grace and beauty
How to beautify face, hands, hair, teeth and feet
How to acquire charm
How to dress attractively
Intimate personal hygiene
How to pick a husband

Secrets for Men—

Mistakes of early marriages
Secrets of fascination
Joys of perfect mating
How to make women love you
Bringing up healthy children
Fever and contagious diseases
Accidents and emergencies
Hygiene in the home
Limitation of offspring
The sexual embrace
Warning to young men
Secrets of greater delight
Dangerous diseases
Secrets of sex attraction
Hygienic precautions
Anatomy and physiology
The reproductive organs
What every woman wants
Education of the family
Sex health and prevention

Important!

This work will not be sold to minors. When ordering your book, state your age!

250,000 Sold

This huge volume of sales enables us to cut the cost of printing to \$2.98 instead of \$5.00. Would YOU risk your health and happiness for the sake of having \$2.98 more in your pocket?—Of course not!

Cut Price Offer

PREFERRED PUBLICATIONS 911
58 West 45th St.
New York City

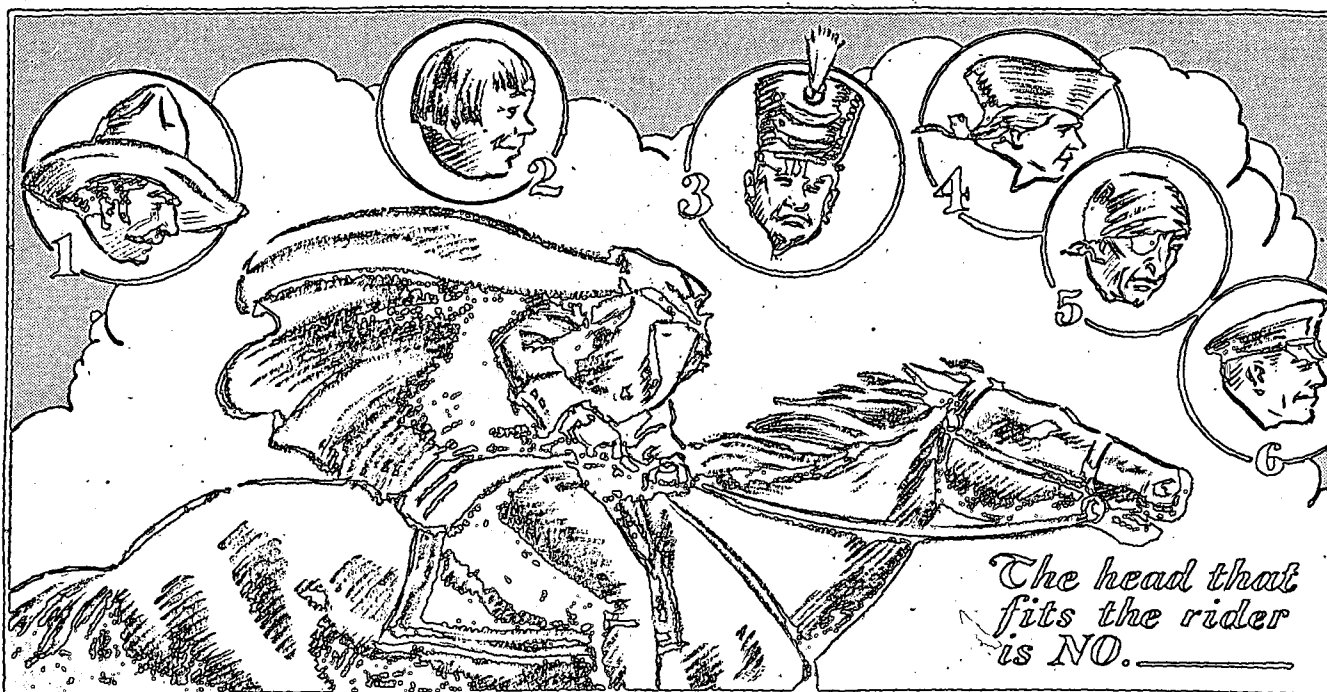
Please send me "Modern Eugenics" SEALED, in plain wrapper. I will pay \$2.98 and postage to the postman on delivery, in accordance with your special half price offer. My age is.....

Name.....

Address.....

Orders from Foreign Countries by Express or Money Order of \$

or Buick 8 Cylinder Sedan and \$2,500.00 Cash



Solve This Old Mystery

Find the Head of the Mysterious Headless Horseman. Six heads are shown. Only one of them belongs to the Mysterious Headless Horseman who for years struck terror to the heart of a peaceful village. No one ever saw his head. Can you now solve this age-old mystery? Here is your chance to qualify to win \$3,700.00 cash or Buick 8 Cylinder Sedan and \$2,500 cash besides. You must look carefully. See that the head you pick fits the collar of the mysterious night rider. Rush your answer at once to qualify in this gigantic distribution of \$12,960 or 4 Buick Sedans and \$8,160.00 in Cash Prizes.

This sensational, easy money making opportunity is just our way of advertising. Someone who solves our puzzle is going to win \$3,700.00. Many other big cash prizes. *Anyone may win—why not you?* This big fortune in cash and automobiles must be given away. Find the Headless Horseman's Head. Get your share of this easy money.

EASY TO WIN

Everyone who takes an active part will be paid in cash. Nothing for you to lose—everything to win. Already we have \$12,960 waiting in the bank to be paid to the winners. Just think how wonderful to get \$3,700 all at one time! And so easily, too! 103 Grand Prizes. The winner of the grand second prize may win \$2,200, and winner of the grand third prize may win \$1,700. Four other \$500 Prizes. *You are absolutely sure of being rewarded in cash if you take an active part.*

Send No Money

Don't delay! Rush answer at once. We give \$1,000 EXTRA prize for promptness if you win First Grand Prize. Take no chance of losing this Extra \$1,000 in addition to First

\$1,000.00

EXTRA PRIZE For Promptness

Just find the Headless Horseman's head—mail the coupon or write letter for full particulars.

You may win \$3,700 if you act quickly. Send your answer today. Now!

Roger Scott, Mgr.

\$12,960.00

Cash Prizes

4 BUICK SEDANS

EVERYONE

Who Takes An Active Part Will Be

PAID IN CASH

Now Is YOUR Chance

To Win a Large Part of This Advertising Prize Money

The money must be given. Thousands are going to profit in cash. Someone is going to win the choice of \$3,700 Cash or Buick 8 Sedan and \$2,500. Many have won big Cash Prizes from us before. Now is YOUR chance. Solve the Mystery of the Headless Horseman. Rush your answer.



S. H. Bent
Lynchburg,
Won \$650.00

Indiana Farmer Wins \$3,500.00 Cash

C. H. Essig, Indiana, won \$3,500.00. He wrote "I wish to thank you 3,500 times for it! Oh boy! This is the biggest sum of money I ever had in my life. When you think of people working a whole lifetime and never realizing such a sum, it is indeed a fortune."



E. C. Tillman
Berwyn, Ill.
Won \$525.00

Carolina Preacher Wins

Dr. S. T. Willis, Pastor of the First Christian Church, S. Carolina, won a cash prize from us. E. C. Tillman, Ill., wrote "Your check for \$525.00 came when I was out of work—it looked like a million dollars."



Mrs. Kate Needham, of Oregon, won \$4,705.00. Miss Serene Burbach, of Wisconsin, won \$1,125.00.

M. D. Reidman of Minnesota, won \$2,560.00. Hundreds of men, women, boys and girls have been rewarded in our past advertising campaign.



Roger Scott, Mgr.,
427 W. Randolph, Dept. 74
Chicago, Illinois

The head that fits the rider is No. . . . I am anxious to win \$3,700. Please tell me how I stand.

Name

Address

Running Hot Water From Your Cold Water Faucet Instantaneously

Only \$3⁷⁵ Complete

Agents! This Mar-
velous Invention

Will Make Up to \$40⁰⁰ a Day Easy



Just plug in at the nearest electric outlet and presto!—you have instantaneous, continuous running hot water from your cold water faucet. This tells you in a nutshell why the invention of the Tom Thumb automatic electric hot water heater will make it easy for you to make up to \$40.00 a day.

The electric heated steaming hot water comes direct from the faucet instantaneously—yes, as quickly as you can turn on the current and the hot water runs indefinitely until you shut off the electricity. The cost is small—convenience is great. Useful wherever hot water is needed—no fuss or bother—attached to any faucet in a jiffy. Works on either AC or DC current. You and your customers will marvel and be delighted at this new discovery of electrical science. The small cost of \$3.75 for the Tom Thumb, Junior (110 volts) or \$5.75 for Tom Thumb, Senior (220 volts) does the work of any expensive hot water heating equipment costing several hundred dollars—the Tom Thumb absolutely eliminates the plumber or any other additional expense. We are the originators, manufacturers, owners and patentees of the famous and original Tom Thumb electric hot water heater.

No Installation — Stick One On Faucet and Sale Is Made

Think of it! No installation, no extra expense—nothing else to do but to stick it on the faucet, turn on electricity and it is there ready for duty. Easily removed when not wanted and easily carried to any part of house where cold water is running and hot water is wanted. Has many uses—too numerous to mention here. Fits any faucet. Weighs only 1 lb., made entirely of aluminum. Cannot rust, no moving parts, nothing to get out of order.

If \$40 A Day Sounds Good To You Rush Coupon

This new scientific invention offers tremendous sales possibilities. At the low price of \$3.75 you should be able to sell at least 40 a day. You pocket \$1.00 cash commission on every sale. If you would like to know all about this proposition, sign your name and address to coupon or, better still, get started selling at once. Attach money order for \$2.75 to coupon and rush to us. We will send complete selling outfit containing 1 Tom Thumb electric hot water heater, order blanks, selling particulars and everything necessary to help you get started making up to \$40.00 a day at once.

**Terminal Products
Co., Inc.**

Dept. 511

200 HUDSON ST.
NEW YORK



KITCHEN



SHAVING



BATH



DOCTOR FACTORY



TERMINAL PRODUCTS CO., Inc.
Dept. 511, 200 Hudson St.
New York, N. Y.

The Tom Thumb electric hot water heater looks like a big money maker to me. I am sure interested in knowing how to make up to \$40.00 a day with this proposition. I have checked below the proposition I am interested in at this moment.

☐ Enclosed find money order for \$2.75. Please send me one Tom Thumb Junior, order blanks and selling information. It is understood upon receipt of this sample outfit I will be permitted to take orders and collect \$1.00 cash deposit for every Tom Thumb, Jr. I sell or \$1.50 for every Tom Thumb, Sr. I sell. It is understood I will send the orders to you and you will ship direct to my customer C. O. D. for the balance.

☐ I would like to have additional information before acting as one of your agents. Please send this by return mail free of obligation.

Name _____
Street _____
City _____ State _____

Canadians please send cash with order at same price
Other foreign countries \$1.00 extra for each unit cash with order